

SEC

SECTION

SECURITY CONTROL SYSTEM

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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

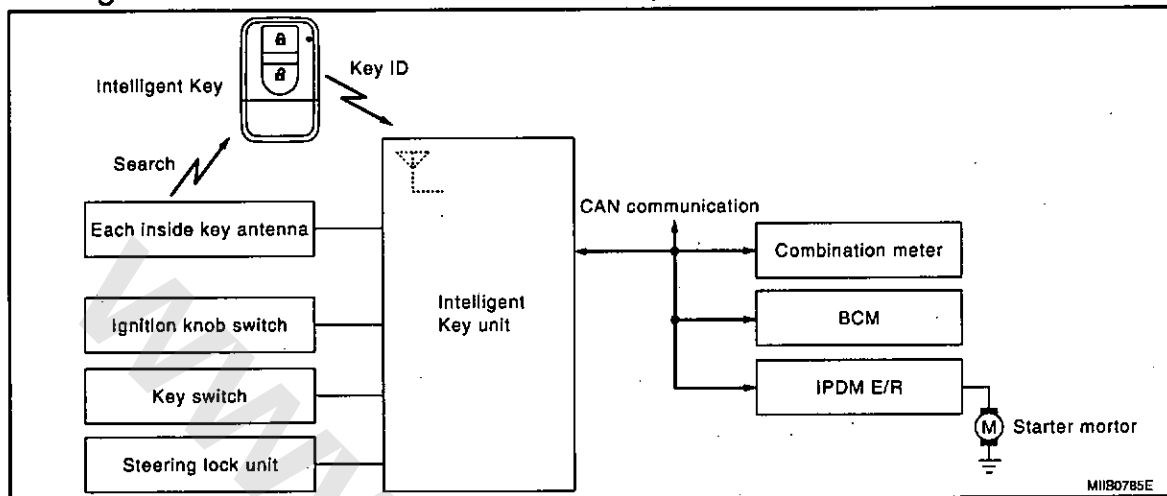
< FUNCTION DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

FUNCTION DIAGNOSIS

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

System Diagram



System Description

INFOID:0000000004898692

- The engine start function of Intelligent Key system is a system that makes it possible to start and stop the engine without using the key. It verifies the electronic ID using two-way communications when pressing the ignition knob switch while carrying the Intelligent Key, which operates based on the results of electronic ID verification for Intelligent Key using two-way communications between the Intelligent Key and the vehicle.

NOTE:

The driver should carry the Intelligent Key at all times.

- Intelligent Key has 2 IDs (for Intelligent Key and for NATS). It can perform the door lock/unlock operation and the engine start operation when the registered Intelligent Key is carried.
- When the Intelligent Key battery is discharged, it can be used as emergency back-up by inserting the mechanical key set in the Intelligent Key to the ignition key cylinder. At that time, perform the NATS ID verification. If it is used when the Intelligent Key is carried, perform the Intelligent Key ID verification.
- If the ID is successfully verified, and when the ignition knob switch is pressed and the brake pedal is pushed, steering lock will be released and initiating the engine will be possible.
- The door lock/unlock operation can be performed when the Intelligent Key battery is discharged, by operating the driver door key cylinder using the mechanical key set in the Intelligent Key.
- Up to 4 Intelligent Keys can be registered (Including the standard Intelligent Key) on request from the owner.

NOTE:

Refer to DLK-16, "INTELLIGENT KEY : System Description" for any functions other than engine start function of Intelligent Key system.

PRECAUTIONS FOR INTELLIGENT KEY SYSTEM

In the Intelligent Key system of model J10, the transponder [the chip for NATS ID verification] is integrated into the Intelligent Key. (For the conventional models, it is integrated into the mechanical key.) Therefore, the mechanical key cannot perform the ID verification, and thus it cannot start the engine. Instead, the NATS ID verification can be performed by inserting the mechanical key into the key cylinder, and then it can start the engine.

OPERATION WHEN INTELLIGENT KEY IS CARRIED

1. When the ignition knob switch and brake switch are ON, and Intelligent Key unit is transmit the request signal to the Intelligent Key.
2. The Intelligent Key receives the request signal and transmits the Intelligent Key ID signal to the Intelligent Key unit.
3. The Intelligent Key unit receives the Intelligent Key ID signal and verifies it with the registered ID.
4. Intelligent Key unit transmits the steering lock unlock signal to steering lock unit and turn on the key warning lamp (green) if the verification results are OK. (The detail of key warning lamp operation, refer to DLK-40, "System Description")

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< FUNCTION DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

5. Release of the steering lock.
6. BCM transmits the starter request signal via CAN communication to IPDM E/R and turns the starter relay in IPDM E/R ON if BCM judges that the engine start condition is satisfied.
7. IPDM E/R turns the starter control relay ON when receiving the starter request signal.
8. When shift position is in P or N position, battery power is supplied through the starter relay and operate the starter motor and to start the cranking.

CAUTION:

If a malfunction is detected in the Intelligent Key system, the red "KEY" warning lamp in the combination meter illuminates. At that time, the engine cannot be started.

OPERATION RANGE

Engine can be started when Intelligent Key is inside the vehicle. However, sometimes engine might not start when Intelligent Key is on instrument panel or in glove box.

OPERATION WHEN MECHANICAL KEY IS USED

When the Intelligent Key battery is discharged, performs the NATS ID verification between the integrated transponder and BCM by inserting the mechanical key into the key cylinder, and then the engine can be started. For details relating to starting the engine using mechanical key, refer to SEC-7, "System Description".

STEERING LOCK OPERATION

Steering is locked by steering lock unit when ignition switch is in the OFF position (the ignition knob is released) and key switch is OFF (key is removed from ignition key cylinder).

KEY INTERLOCK OPERATION (ONLY FOR M/T MODELS)

In case of a M/T vehicle is in motion and ignition is turned into LOCK position, steering lock unit causes a risk by activating the steering lock actuator. The key interlock operation is designed to override the steering lock system and prevent the situation mentioned above from occurring.

LOCK condition

When the following conditions are fulfilled, key interlock solenoid will be locked. (Steering lock inactive)

- 1 second passes after ignition switch is in ON position and engine revolution speed goes above 500 rpm.

UNLOCK condition

When any of the following condition are fulfilled key interlock solenoid will be unlocked. (Steering lock active)

- When vehicle speed is below 4km/h and the ignition switch is turned from ON to OFF.
- When vehicle speed is over 4km/h but less than 10km/h, and 3 second passes after the ignition switch is turned from ON to OFF.

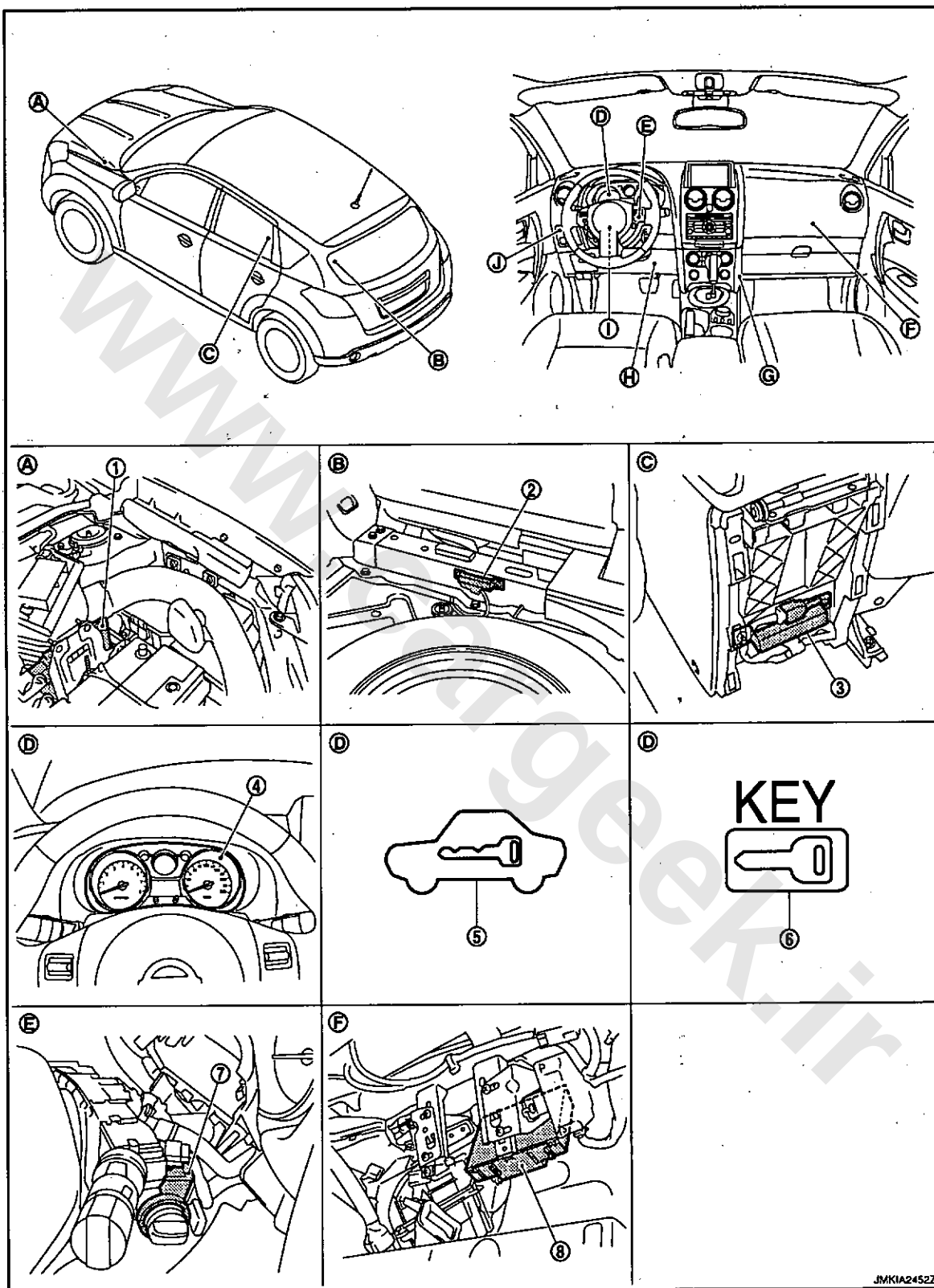
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< FUNCTION DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Component Parts Location

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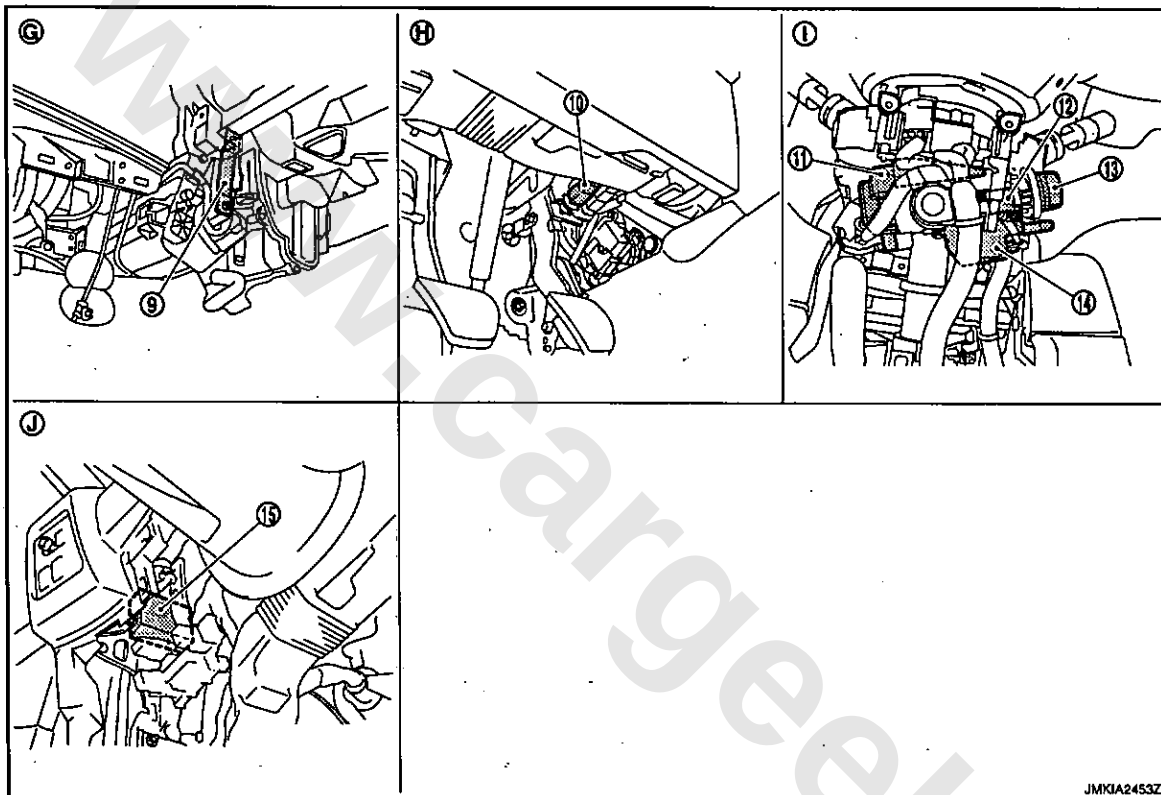
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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< FUNCTION DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

- | | | |
|--------------------------------|--|--|
| 1. ECM | 2. Inside key antenna (rear seat) B45 | 3. Inside key antenna (console) M61 |
| • E16 (gasoline engine models) | | |
| • E121 (M9R engine models) | | |
| 4. Combination meter M34 | 5. Security indicator lamp | 6. Key warning lamp M34 |
| | • Gasoline engine M34 | |
| | • M9R engine M511 | |
| 7. NATS antenna amp. M26 | 8. BCM M65, M66, M67 | |
| A. Engine room (LH) | B. View with luggage floor spacer (LH) removed | C. View with console rear finisher removed |
| D. Built in combination meter | E. View with steering column cover removed | F. Over the glove box |



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- | | | |
|---|---|--|
| 9. Inside Key antenna (instrument center) M70 | 10. Stop lamp switch | 11. Steering lock unit M28 |
| | • Gasoline engine M/T models: E114 | |
| | • Gasoline engine CVT models: E115 | |
| | • M9R engine models: E118 | |
| 12. Ignition knob switch, key switch and key lock solenoid (key switch) M25 | 13. Ignition knob switch, key switch and key lock solenoid (ignition knob switch) M25 | 14. Ignition knob switch, key switch and key lock solenoid (key lock solenoid) M25 |
| 15. Intelligent Key unit M40 | | |
| G. View with instrument lower cover RH removed | H. Remove lower instrument panel (driver side) | I. View with steering column cover removed |
| J. Remove lower instrument panel (driver side) | | |

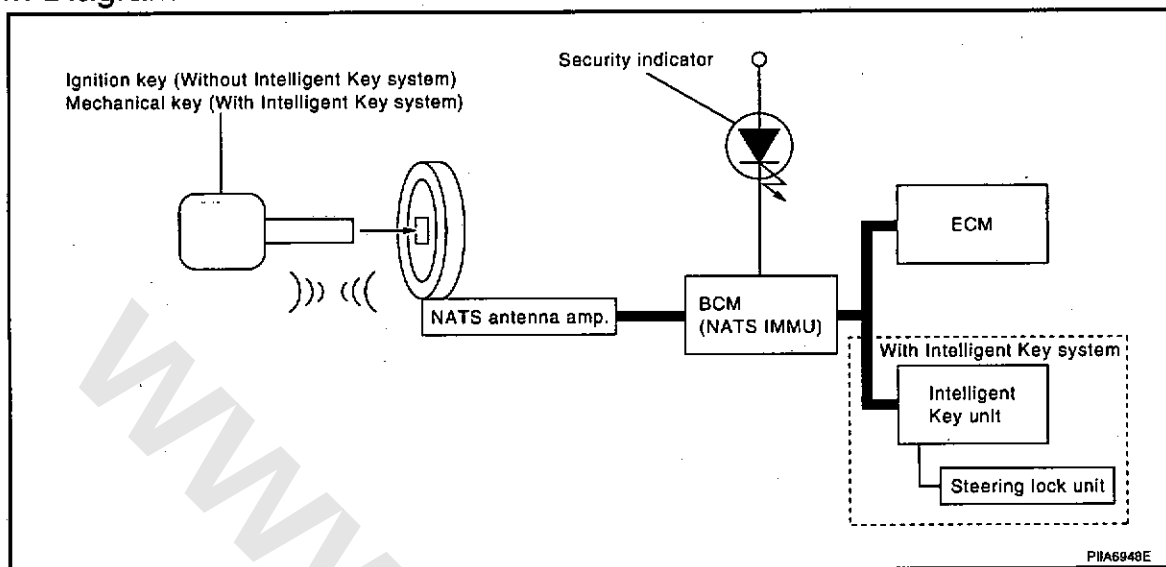
NATS (NISSAN ANTI-THEFT SYSTEM)

< FUNCTION DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

NATS (NISSAN ANTI-THEFT SYSTEM)

System Diagram



System Description

NATS (Nissan Anti-Theft System) has the following immobilizer functions:

- Engine immobilizer shows high anti-theft performance to prevent engine from starting by other than the owner.
- Only a key with key ID registered in BCM and ECM can start engine, and shows high anti-theft performance to prevent key from being copied or stolen.
- Security indicator lamp always flashes with mechanical key removed condition (key switch: OFF) and ignition knob released condition on LOCK position (ignition knob switch: OFF).
- If system detects malfunction, security indicator lamp illuminates when ignition switch is turned to ON position.
- If the owner requires, ignition key ID or mechanical key ID can be registered for up to 5 keys.
- If ECM other than Genuine NISSAN is installed, the engine cannot be started. For ECM replacement procedure, refer to EC-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description".

PRECAUTIONS FOR KEY REGISTRATION

- The key registration is a procedure that erases the current NATS ID once, and then re-registers a new ID. Therefore the registered Intelligent Key is necessary for this procedure. Before starting the registration operation collect all registered Intelligent Keys from the customer.
- The NATS ID registration is the procedure that registers the ID stored into the transponder (integrated in mechanical key) to BCM.
The Intelligent Key ID registration is the procedure that registers the ID to Intelligent Key unit.
- When performing the Intelligent Key system registration only, the engine cannot be started by inserting the key into the key cylinder. When performing the NATS registration only, the engine cannot be started by using the mechanical key.

SECURITY INDICATOR LAMP

- Always flashes with ignition knob released (ignition knob switch: OFF) condition on ignition knob LOCK position.
- Always flashes with ignition knob released (ignition knob switch: OFF) condition on mechanical key removed position.

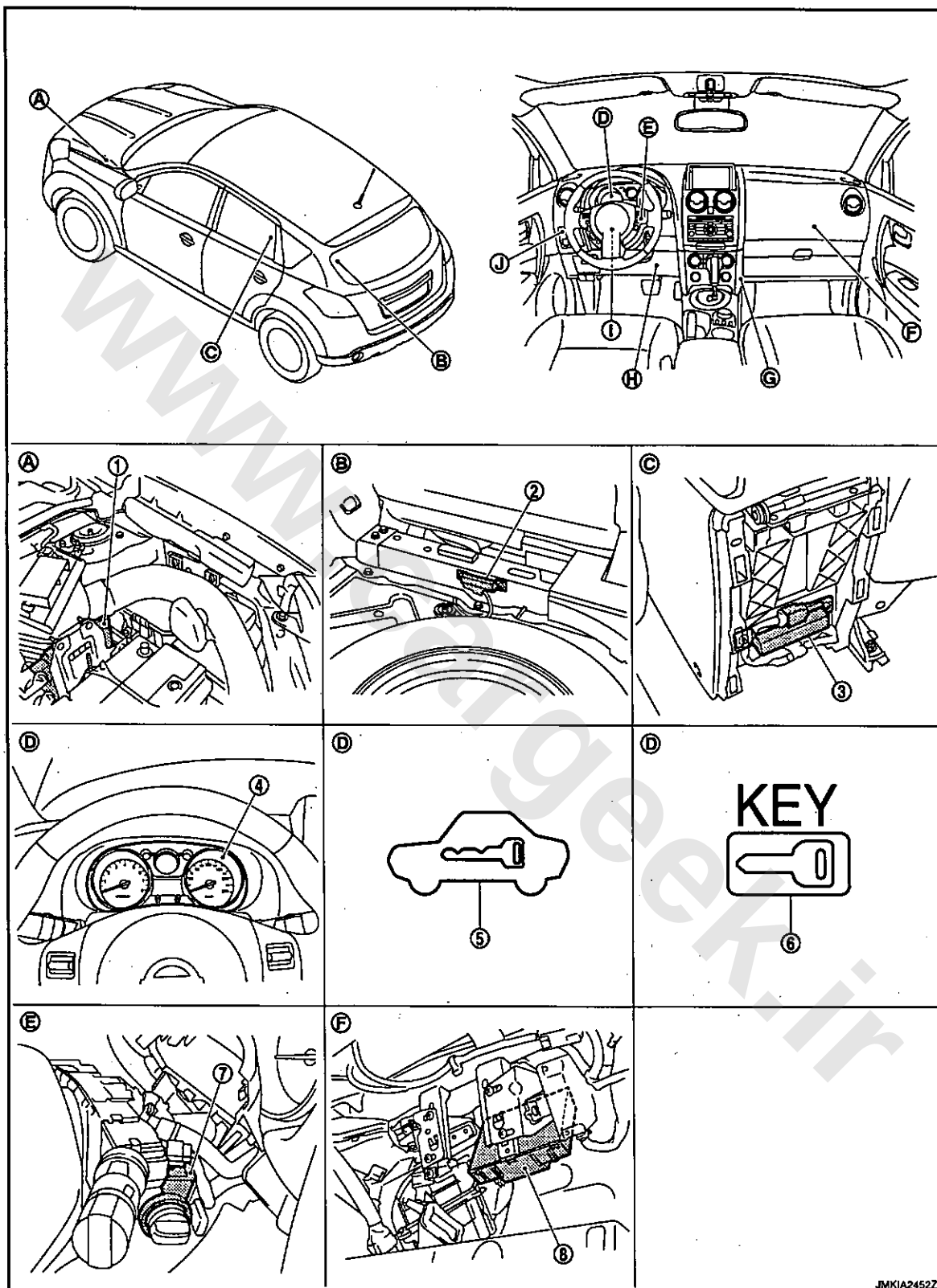
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< FUNCTION DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Component Parts Location

INFOID:0000000004898697



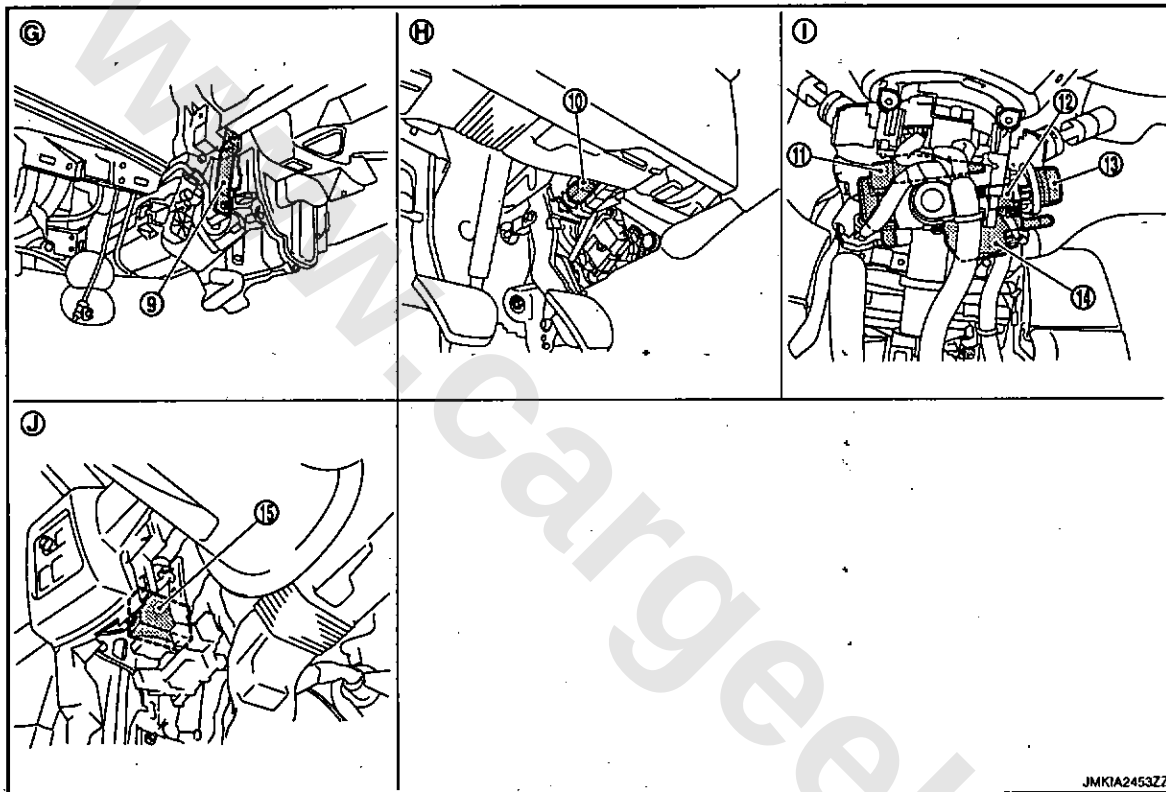
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NATS (NISSAN ANTI-THEFT SYSTEM)

< FUNCTION DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

- | | | | |
|--|--|--|---|
| 1. ECM
• E16 (gasoline engine models)
• E121 (M9R engine models) | 2. Inside key antenna (rear seat) B45 | 3. Inside key antenna (console) M61 | A |
| 4. Combination meter M34 | 5. Security indicator lamp
• Gasoline engine M34
• M9R engine M511 | 6. Key warning lamp M34 | B |
| 7. NATS antenna amp. M26 | 8. BCM M65, M66, M67 | | |
| A. Engine room (LH) | B. View with luggage floor spacer (LH) removed | C. View with console rear finisher removed | C |
| D. Built in combination meter | E. View with steering column cover removed | F. Over the glove box | D |



- | | | | |
|---|---|--|---|
| 9. Inside Key antenna (instrument center) M70 | 10. Stop lamp switch
• Gasoline engine M/T models: E114
• Gasoline engine CVT models: E115
• M9R engine models: E118 | 11. Steering lock unit M28 | L |
| 12. Ignition knob switch, key switch and key lock solenoid (key switch) M25 | 13. Ignition knob switch, key switch and key lock solenoid (ignition knob switch) M25 | 14. Ignition knob switch, key switch and key lock solenoid (key lock solenoid) M25 | M |
| 15. Intelligent Key unit M40 | | | |
| G. View with instrument lower cover RH removed | H. Remove lower instrument panel (driver side) | I. View with steering column cover removed | N |
| J. Remove lower instrument panel (driver side) | | | O |

POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

COMPONENT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

INTELLIGENT KEY UNIT

INTELLIGENT KEY UNIT : Diagnosis Procedure

INFOID:0000000004898759

1.CHECK FUSE

Check that the following fuse is not blown.

Terminal No.	Signal name	Fuse No.
11	Battery power supply	9 (10A)
6	Ignition power supply	4 (10A)

Is the fuse blown?

YES >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Disconnect Intelligent Key unit connector.
2. Turn ignition switch ON.
3. Check voltage between Intelligent Key unit harness connector and ground.

(+) Intelligent Key unit		(-)	Voltage (V) (Approx.)
Connector	Terminal		
M40	11	Ground	Battery voltage
	6		

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK GROUND CIRCUIT

Check continuity between Intelligent Key unit harness connector and ground.

Intelligent Key unit		Ground	Continuity
Connector	Terminal		
M40	12		Exists

Does continuity exist?

YES >> Intelligent Key unit power supply and ground circuit are OK.

NO >> Repair harness or connector.

BCM

BCM : Diagnosis Procedure

INFOID:0000000004898761

1.CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not fusing.

Terminal No.	Signal name	Fuses and fusible link No.
41	Battery power supply	9
57		J
38	Ignition power supply	4

Is the fuse fusing?

POWER SUPPLY AND GROUND CIRCUIT

[WITH INTELLIGENT KEY SYSTEM]

< COMPONENT DIAGNOSIS >

- YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or fusible link is blown.
NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connectors.
3. Check voltage between BCM harness connector and ground.

(+)		(-)	Ignition switch position		
BCM			OFF	ACC	ON
Connector	Terminal				
M65	37	Ground	Approx. 0 V	Battery voltage	Battery voltage
	38		Approx. 0 V	Approx. 0 V	Battery voltage
M66	41		Battery voltage	Battery voltage	Battery voltage
M67	57				

Is the measurement value normal?

- YES >> GO TO 3.
NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		Existed
M67	55		

Does continuity exist?

- YES >> INSPECTION END
NO >> Repair or replace harness.

KEY SWITCH

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

KEY SWITCH

Description

INFOID:0000000004896762

Key switch detects that mechanical key is inserted into the key cylinder, and then transmits the signal to BCM and Intelligent Key unit.

Diagnosis Procedure

INFOID:0000000004896764

1.CHECK KEY SWITCH POWER SUPPLY CIRCUIT

1. Remove mechanical key from key cylinder.
2. Disconnect ignition knob switch, key switch and key lock solenoid connector.
3. Check voltage between ignition knob switch, key switch and key lock solenoid harness connector and ground.

(+) Ignition knob switch, key switch and key lock solenoid		(-)	Voltage (V) (Approx.)
Connector	Terminal		
M25	2	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK KEY SWITCH SIGNAL CIRCUIT

1. Check continuity between Intelligent Key unit harness connector and ignition knob switch, key switch and key lock solenoid harness connector.

Intelligent Key unit		Ignition knob switch, key switch and key lock solenoid		Continuity
Connector	Terminal	Connector	Terminal	
M40	7	M25	1	Existed

2. Check continuity between BCM harness connector and ignition knob switch, key switch and key lock solenoid harness connector.

BCM		Ignition knob switch, key switch and key lock solenoid		Continuity
Connector	Terminal	Connector	Terminal	
M65	36	M25	1	Existed

3. Check continuity between ignition knob switch, key switch and key lock solenoid harness connector and ground.

Ignition knob switch, key switch and key lock solenoid		Ground	Continuity
Connector	Terminal		
M25	1		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK KEY SWITCH

Check key switch.

Refer to SEC-13, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace ignition knob switch, key switch and key lock solenoid.

KEY SWITCH

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

4.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

>> INSPECTION END

Component Inspection

INFOID:000000004898765

1.CHECK KEY SWITCH

1. Turn ignition switch OFF.
2. Disconnect ignition knob switch, key switch and key lock solenoid connector.
3. Check continuity between ignition knob switch, key switch and key lock solenoid terminals.

Ignition knob switch, key switch and key lock solenoid		Condition	Continuity
Terminal			
1	2	Insert mechanical key into key cylinder	Existed
		Remove mechanical key from key cylinder	Not existed

Is the inspection result normal?

YES >> Key switch is OK.

NO >> Replace ignition knob switch, key switch and key lock solenoid.

IGNITION KNOB SWITCH

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

IGNITION KNOB SWITCH

Description

INFOID:0000000004898766

Ignition knob switch detects that ignition knob is pressed, and then transmits the signal to Intelligent Key unit.

Diagnosis Procedure

INFOID:0000000004898768

1. CHECK IGNITION KNOB SWITCH POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect ignition knob switch, key switch and key lock solenoid connector.
3. Check voltage between ignition knob switch, key switch and key lock solenoid harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Ignition knob switch, key switch and key lock solenoid			
Connector	Terminal		
M25	4	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2. CHECK IGNITION KNOB SWITCH SIGNAL CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between Intelligent Key unit harness connector and ignition knob switch, key switch and key lock solenoid harness connector.

Intelligent Key unit		Ignition knob switch, key switch and key lock solenoid		Continuity
Connector	Terminal	Connector	Terminal	
M40	27	M25	3	Exists

3. Check continuity between ignition knob switch, key switch and key lock solenoid harness connector and ground.

Ignition knob switch, key switch and key lock solenoid		Ground	Continuity
Connector	Terminal		
M25	3		Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK IGNITION KNOB SWITCH

Check ignition knob switch.

Refer to [SEC-15, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace ignition knob switch, key switch and key lock solenoid.

4. CHECK INTERMITTENT INCIDENT

Refer to [GI-38, "Intermittent Incident"](#).

>> INSPECTION END

IGNITION KNOB SWITCH

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Component Inspection

INFOID:0000000004898769

1. CHECK IGNITION KNOB SWITCH

1. Turn ignition switch OFF.
2. Disconnect ignition knob switch, key switch and key lock solenoid harness connector.
3. Check continuity between ignition knob switch, key switch and key lock solenoid terminals under the following conditions.

Ignition knob switch, key switch and key lock solenoid		Condition	Continuity
Terminal			
3	4	Ignition knob switch is pressed	Exists
		Ignition knob switch is released	Does not exist

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace ignition knob switch, key switch and key lock solenoid.

STOP LAMP SWITCH

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

STOP LAMP SWITCH

Description

INFOID:0000000004898770

Stop lamp switch detects that brake pedal is depressed, and then transmits the signal to BCM.

Component Function Check

INFOID:0000000004898771

1.CHECK STOP LAMP SWITCH INPUT SIGNAL

Check stop lamp function by depressing brake pedal.

Is the inspection result normal?

YES >> Stop lamp switch is OK.

NO >> Refer to SEC-16. "Diagnosis Procedure".

Diagnosis Procedure

INFOID:0000000004898772

1.CHECK STOP LAMP SWITCH INPUT SIGNAL

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

Terminals			Condition	Voltage (V) (Approx.)
(+) BCM connector		(-) Terminal		
M66	51	Ground	Brake pedal is depressed	Battery voltage
			Brake pedal is not depressed	0

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2.CHECK STOP LAMP SWITCH POWER SUPPLY CIRCUIT

1. Disconnect stop lamp switch connector.
2. Check voltage between stop lamp switch harness connector and ground.

Terminals			Voltage (V) (Approx.)
(+)		(-)	
Stop lamp switch connector	Terminal		
E114 (M/T models) E115 (CVT models) E118 (M9R engine models)	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK STOP LAMP SWITCH SIGNAL CIRCUIT

1. Check continuity between BCM harness connector and stop lamp switch harness connector.

BCM connector	Terminal	Stop lamp switch connector	Terminal	Continuity
M66	51	E114 (M/T models) E115 (CVT models) E118 (M9R engine models)	2	Existed

2. Check continuity between stop lamp switch connector and ground.

STOP LAMP SWITCH

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Stop lamp switch connector	Terminal	Ground	Continuity
E114 (M/T models) E115 (CVT models) E118 (M9R engine models)	2	Ground	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK STOP LAMP SWITCH

Check stop lamp switch.

Refer to SEC-17, "Component Inspection".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-38, "Intermittent Incident".

NO >> Replace stop lamp switch.

Component Inspection

INFOID:000000004898773

1.CHECK STOP LAMP SWITCH

1. Turn ignition switch OFF.
2. Disconnect stop lamp switch harness connector.
3. Check continuity between stop lamp switch terminals under the following conditions.

Stop lamp switch		Condition	Continuity
Terminal			
1	2	Brake pedal is depressed	Existed
		Brake pedal is released	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace stop lamp switch.

SEC

SECURITY INDICATOR LAMP

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SECURITY INDICATOR LAMP

Description

INFOID:000000004898774

- Security indicator lamp is built in combination meter.
- NATS (Nissan Anti-Theft System) and vehicle security system conditions are indicated by blink or illumination of security indicator lamp.

Diagnosis Procedure

INFOID:000000004898776

1.CHECK SECURITY INDICATOR LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check voltage between combination meter harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Combination meter			
Connector	Terminal		
M34	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK SECURITY INDICATOR LAMP SIGNAL

1. Connect security indicator lamp connector.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
BCM			
Connector	Terminal		
M65	18	Ground	Battery voltage

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-46, "Removal and Installation".

NO >> GO TO 3.

3.CHECK SECURITY INDICATOR LAMP SIGNAL CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and combination meter harness connector.

BCM		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M65	18	M34	28	Existed

3. Check continuity between combination meter harness connector and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M34	28		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK SECURITY INDICATOR LAMP

Refer to SEC-19, "Component Inspection (Combination Meter)".

SECURITY INDICATOR LAMP

[WITH INTELLIGENT KEY SYSTEM]

< COMPONENT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace combination meter. Refer to MWI-53, "Removal and Installation".

5.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

>> INSPECTION END

Component Inspection (Combination Meter)

INFOID:0000000004898777

1.CHECK SECURITY INDICATOR LAMP

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter terminals.

Terminal		Continuity
Combination meter		
(+)*	(-)*	
1	28	Existed
28	1	Not existed

* For digital tester.

NOTE:

- Use a tester that can perform LED (Light-Emitting Diode) measurement.
- The polarity (+ and -) reverses when checking using an analog tester.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace combination meter. Refer to MWI-53, "Removal and Installation".

SEC

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

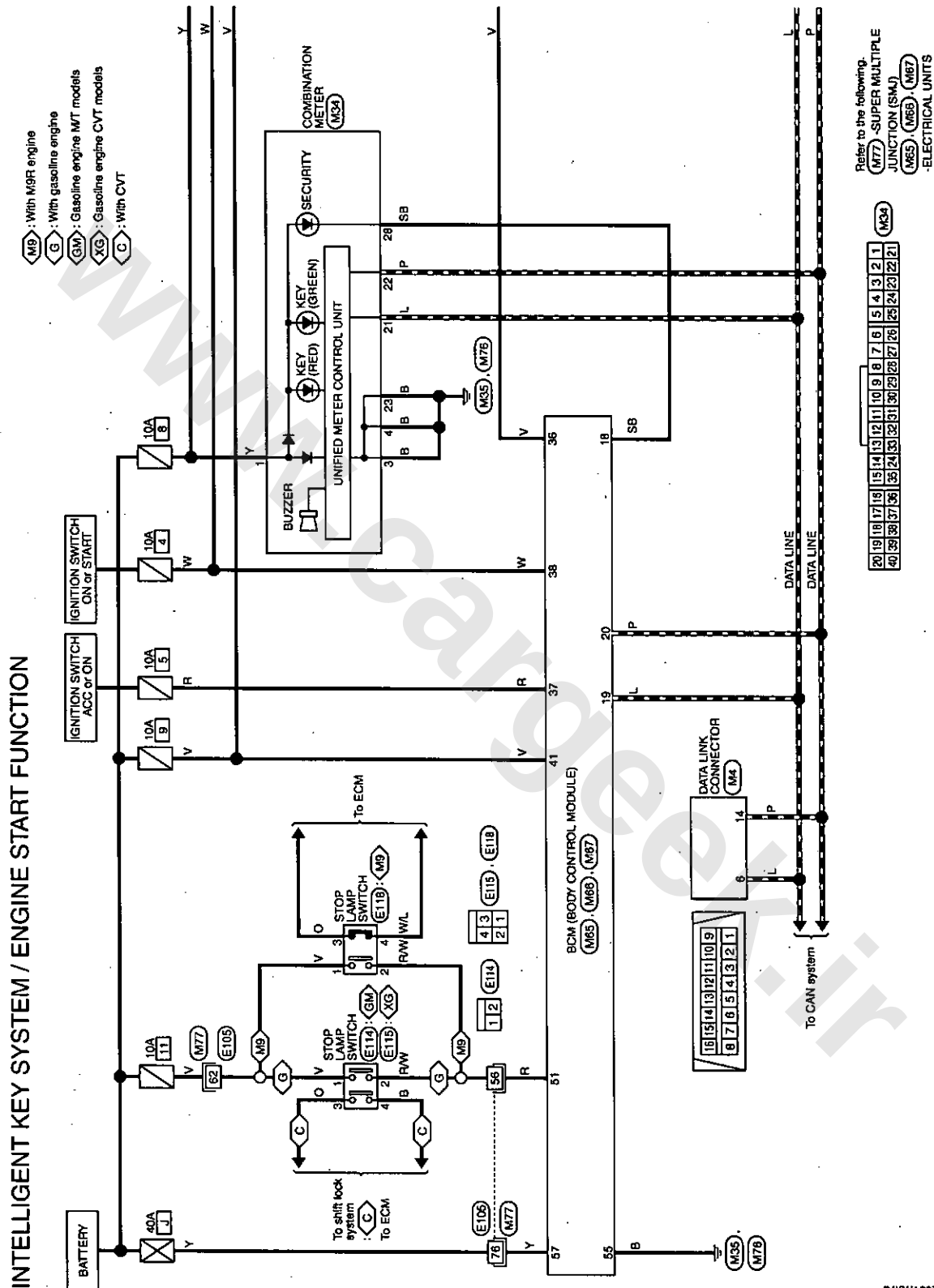
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[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

Wiring Diagram - INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION -

INFOID:000000004898780



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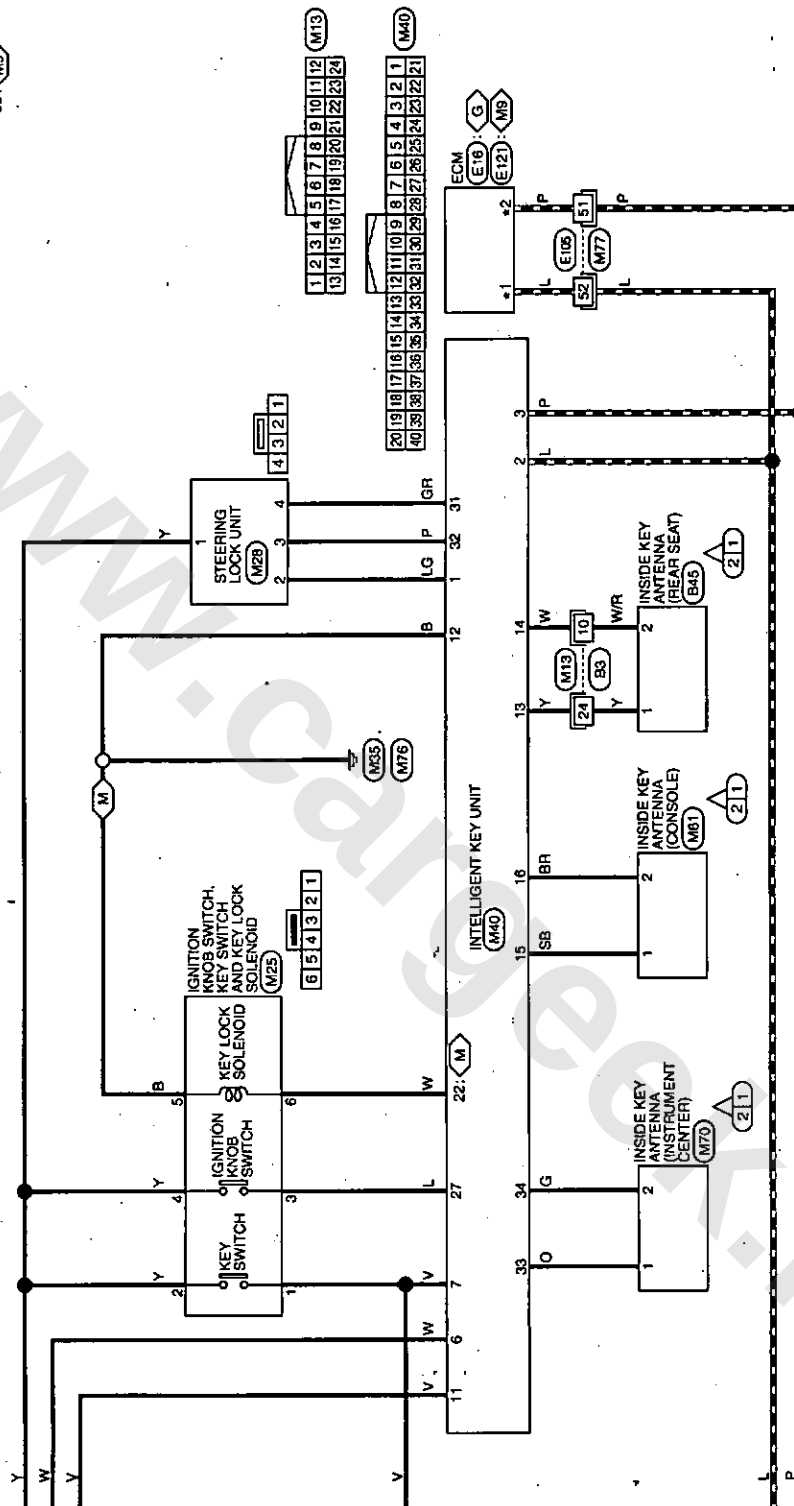
INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION

< COMPONENT DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

G : With gasoline engine
 M9 : With M9R engine
 M : With MT
 *1 B4 : G
 100 : M9
 *2 B3 : G
 99 : M9

Refer to the following.
 (M77) SUPER MULTIPLE
 JUNCTION (SMJ)
 (E16) (E12)
 ELECTRICAL UNITS



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NATS (NISSAN ANTI-THEFT SYSTEM)

< COMPONENT DIAGNOSIS >

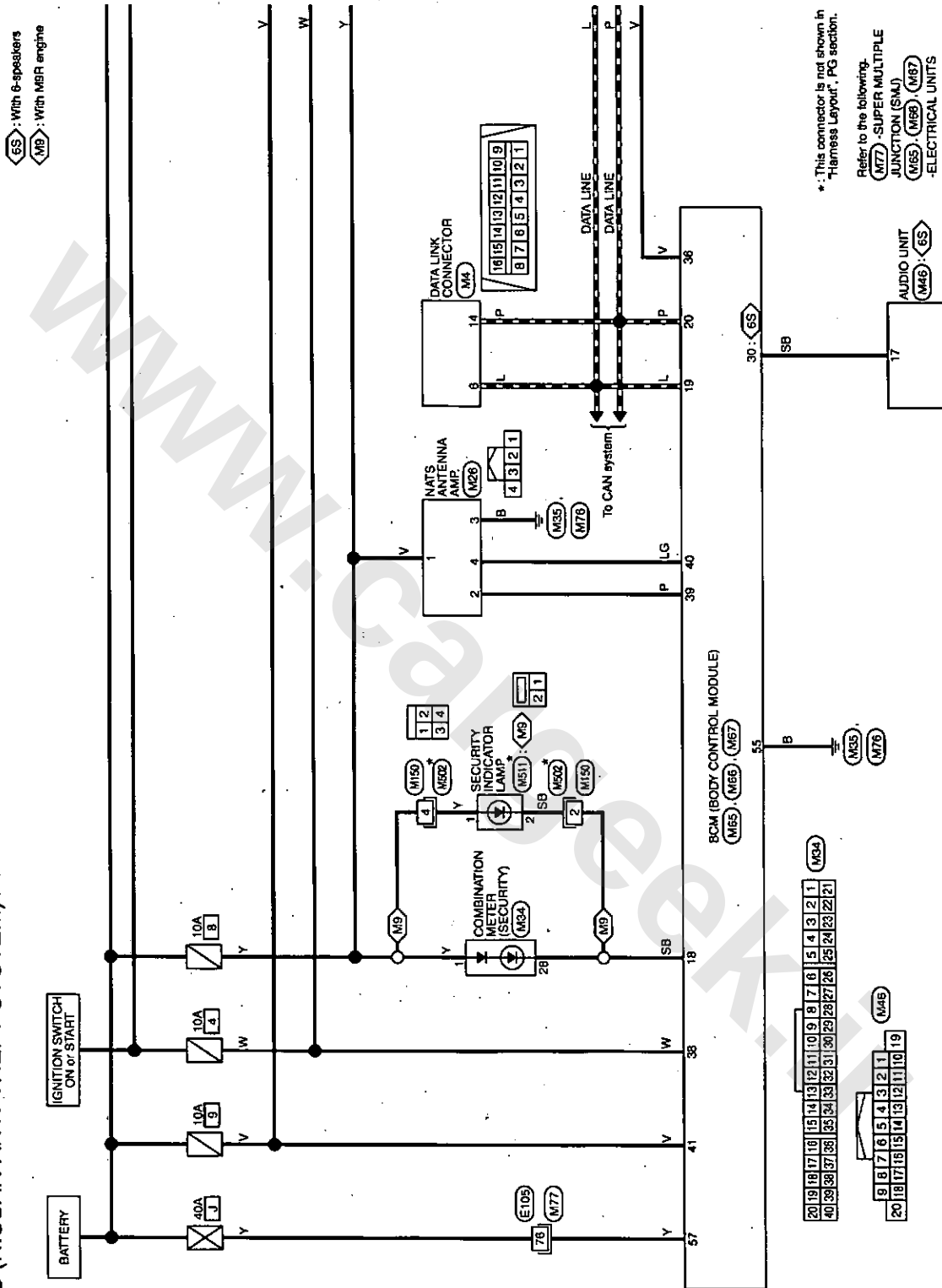
[WITH INTELLIGENT KEY SYSTEM]

NATS (NISSAN ANTI-THEFT SYSTEM)

Wiring Diagram - NATS -

INFOID:000000004896781

NATS (NISSAN ANTI-THEFT SYSTEM) / WITH INTELLIGENT KEY



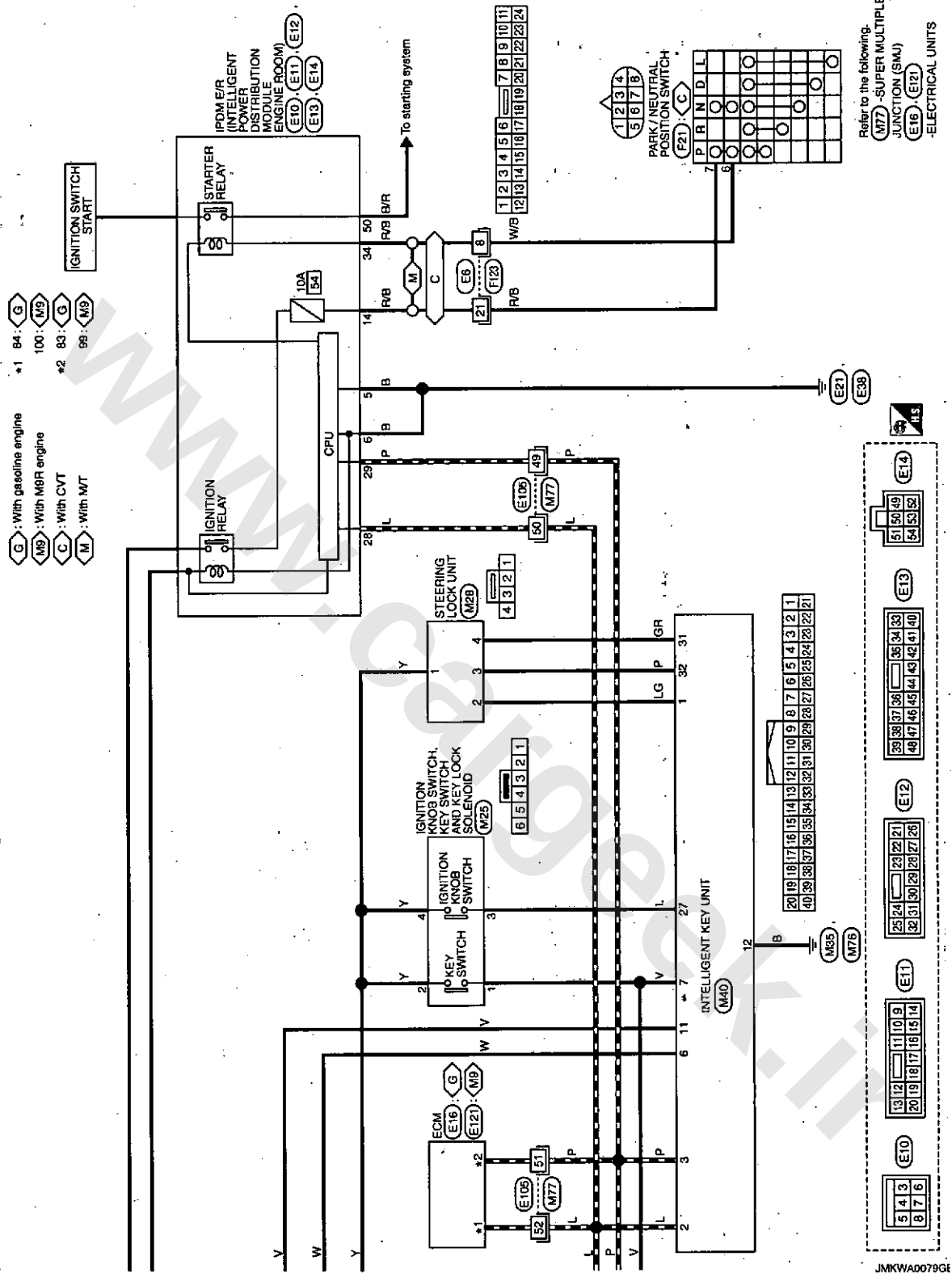
*: This connector is not shown in "Harness Layout", PG section.
Refer to the following:
(M77) - SUPER MULTIPLE JUNCTION (SMJ)
(M65) - (M68) - (M87) - ELECTRICAL UNITS

JMKWA0078G1

NATS (NISSAN ANTI-THEFT SYSTEM)

[WITH INTELLIGENT KEY SYSTEM]

< COMPONENT DIAGNOSIS >



BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

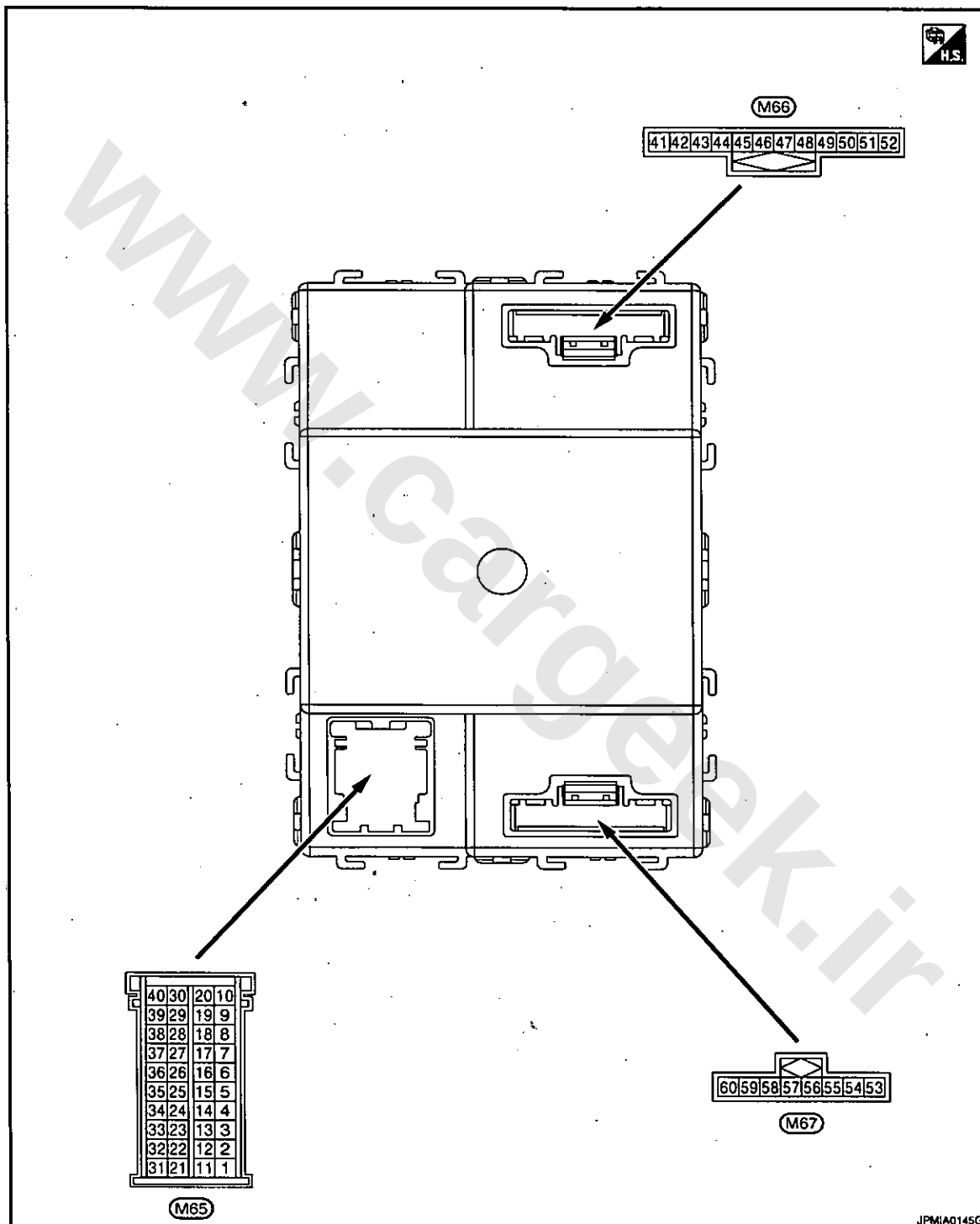
ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000004839869

TERMINAL LAYOUT



PHYSICAL VALUES

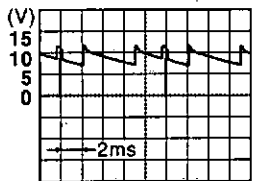
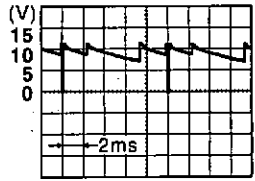
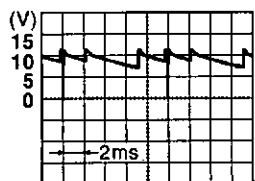
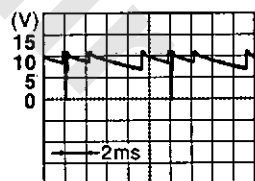
CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF is not to be fluctuated by being overloaded.
- BCM reads the status of the combination switch at 10 ms interval normally. Refer to BCS-4, "System Description".

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

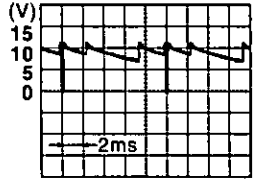
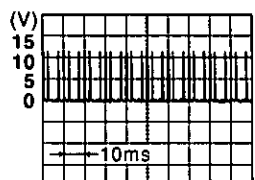
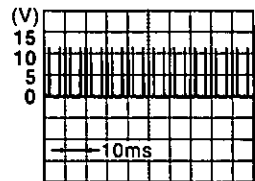
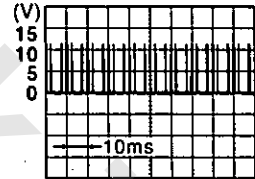
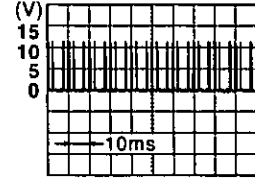
< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
1	Ground	Combination switch OUTPUT 1	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4)	 9.1 V
					Rear wiper switch INT (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF	
					• Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3 • Wiper intermittent dial 6 • Wiper intermittent dial 7	
2	Ground	Combination switch OUTPUT 4	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	0 V
					Lighting switch 2ND	 9.3 V
					Lighting switch PASS	
					Front fog lamp switch ON	
					Turn signal switch LH	
3	Ground	Combination switch OUTPUT 3	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	0 V
					Lighting switch AUTO	 9.3 V
					Rear fog lamp switch OFF	
					Front wiper switch MIST	
					Front wiper switch INT	
					Front wiper switch LO	
4	Ground	Combination switch OUTPUT 2	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch ON (Wiper intermittent dial 4)	 9.1 V
					Rear wiper switch ON (Wiper intermittent dial 4)	
					Rear washer switch ON (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF	
					• Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

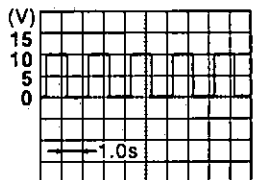
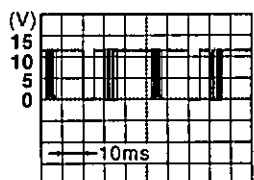
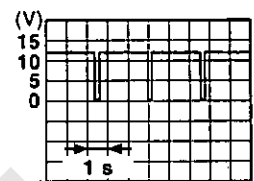
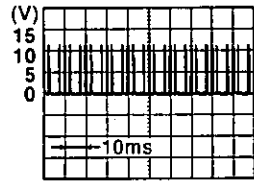
< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
5	Ground	Combination switch OUTPUT 5	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	0 V
					Lighting switch 1ST	 9.1 V JPMIA0164GB
					Lighting switch 2ND	
					Lighting switch HI	
					Turn signal switch RH	
7	Ground	Door lock/unlock switch (Lock)	Input	Door lock/un- lock switch	Not pressed	 1.2 V JPMIA0154GB
					Pressed to the lock side	0 V
8	Ground	Hazard switch	Input	Hazard switch	Not pressed	 1.3 V JPMIA0154GB
					Pressed	0 V
9	Ground	Door lock/unlock switch (Unlock)	Input	Door lock/un- lock switch	Not pressed	 1.2 V JPMIA0154GB
					Pressed to the unlock side	0 V
12	Ground	Back door opener switch	Input	Back door opener switch	Not pressed	 1.2 V JPMIA0154GB
					Pressed	0 V

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/Output			
13	Ground	Shock detect sensor	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		 6.0 V
14	Ground	A/C switch	Input	A/C switch	Not pressed	Battery voltage
					Pressed	0 V
15	Ground	Fan switch	Input	Fan switch	Not pressed	Battery voltage
					Pressed	0 V
17	Ground	Light & rain sensor serial link	Input/Output	Ignition switch OFF or ACC		Battery voltage
				Ignition switch ON		 8.7 V
18	Ground	Security indicator	Output	Security indicator	ON	0 V
					Blinking	 10.3 V
					OFF	Battery voltage
19	—	CAN-H	Input/Output	—		—
20	—	CAN-L	Input/Output	—		—
21	Ground	Rear window defogger switch	Input	Rear window defogger switch	Not pressed	 1.1 V
					While pressing	0 V
24*1	Ground	Door lock status indicator	Output	Door lock status indicator	ON	Battery voltage
					OFF	0 V

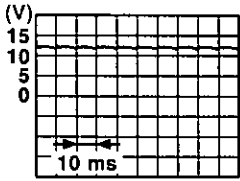
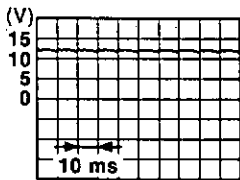
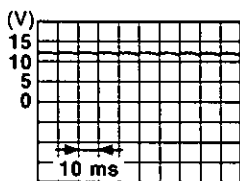
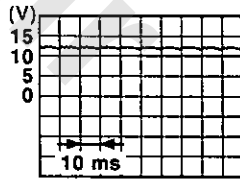
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

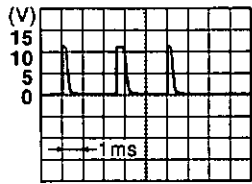
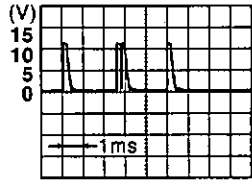
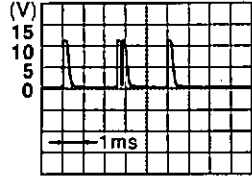
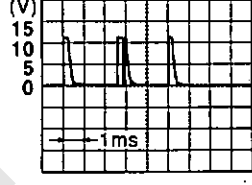
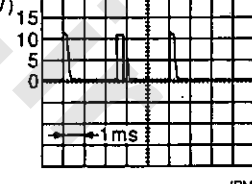
[WITH INTELLIGENT KEY SYSTEM]

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
25	Ground	Rear door switch LH	Input	Rear door switch LH	OFF (When rear door LH closed)	 11.2 V
					ON (When rear door LH opened)	0 V
26	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	 11.2 V
					ON (When driver door opened)	0 V
27	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	 11.2 V
					ON (When passenger door opened)	0 V
28	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	Battery voltage
					ON (When back door opened)	0 V
29	Ground	Rear door switch RH	Input	Rear door switch RH	OFF (When rear door RH closed)	 11.2 V
					ON (When rear door RH opened)	0 V
30*2	Ground	Audio link	Input/ Output	—	—	—

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

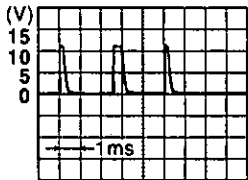
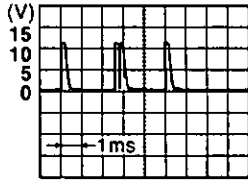
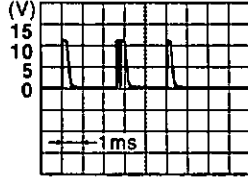
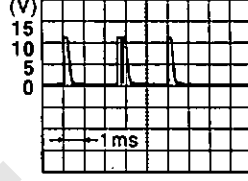
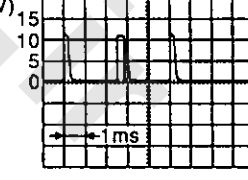
< ECU DIAGNOSIS >

Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/Output		
31	Ground	Combination switch INPUT 5	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)  JPMA0165GB 1.3 V
				Front fog lamp switch ON (Wiper intermittent dial 4)	 JPMA0167GB 1.3 V
				Rear fog lamp switch ON (Wiper intermittent dial 4)	 JPMA0168GB 1.3 V
				Rear wiper switch ON (Wiper intermittent dial 4)	 JPMA0169GB 1.3 V
				Any of the condition below with all switch OFF - Wiper intermittent dial 1 - Wiper intermittent dial 2 - Wiper intermittent dial 6 - Wiper intermittent dial 7	 JPMA0196GB 1.3 V

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

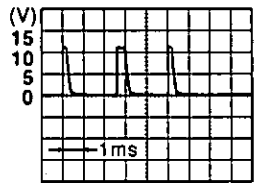
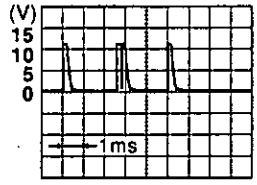
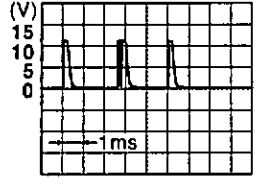
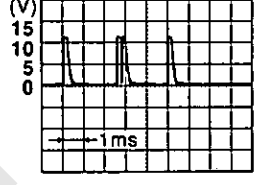
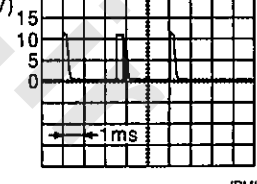
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Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
32	Ground	Combination switch INPUT 2	Input	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	 1.4 V
					Lighting switch PASS	 1.3 V
					Lighting switch 2ND	 1.3 V
					Front wiper switch INT	 1.3 V
					Front wiper switch HI	 1.3 V

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/Output		
33	Ground	Combination switch INPUT 1	Input	All switch OFF	 1.4 V
				Turn signal switch LH	 1.3 V
				Turn signal switch RH	 1.3 V
				Front wiper switch LO	 1.3 V
				Front washer switch ON	 1.3 V

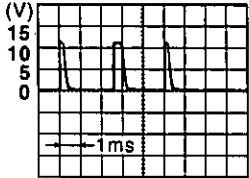
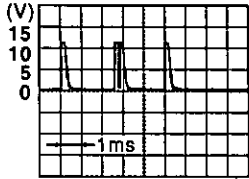
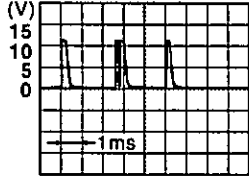
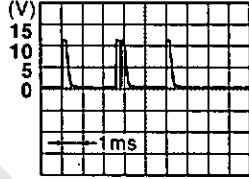
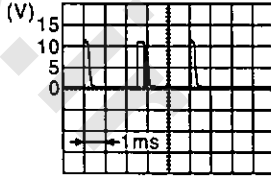
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BCM (BODY CONTROL MODULE)

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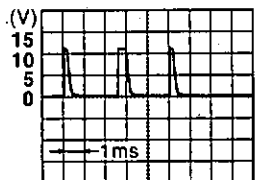
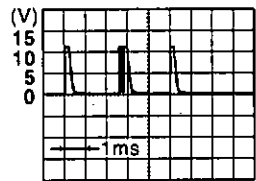
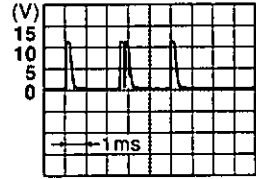
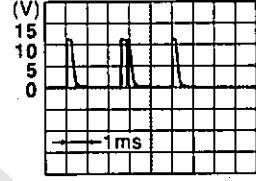
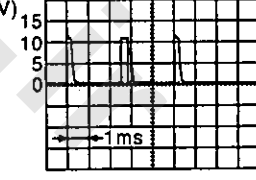
[WITH INTELLIGENT KEY SYSTEM]

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
34	Ground	Combination switch INPUT 4	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	 JPMIA0165GB 1.4 V
					Lighting switch AUTO (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Lighting switch 1ST (Wiper intermittent dial 4)	 JPMIA0166GB 1.3 V
					Rear wiper INT (Wiper intermittent dial 4)	 JPMIA0167GB 1.3 V
					Any of the condition below with all switch OFF - Wiper intermittent dial 1 - Wiper intermittent dial 6	 JPMIA0166GB 1.3 V

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

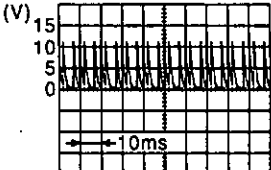
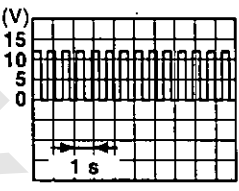
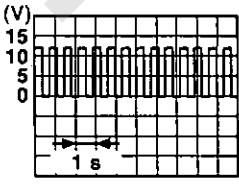
< ECU DIAGNOSIS >

Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
35	Ground	Combination switch INPUT 3	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)  1.4 V
				Lighting switch HI (Wiper intermittent dial 4)	 1.3 V
				Lighting switch 2ND (Wiper intermittent dial 4)	 1.3 V
				Rear wiper switch ON	 1.3 V
				Any of the condition below with all switch OFF	 1.3 V
36	Ground	Key switch	Input	Insert mechanical key into ignition key cylinder	Battery voltage
				Remove mechanical key from ignition key cylinder	0 V
37	Ground	ACC power supply	Input	Ignition switch OFF	0 V
				Ignition switch ACC or ON	Battery voltage
38	Ground	Ignition power supply	Input	Ignition switch OFF or ACC	0 V
				Ignition switch ON	Battery voltage

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/Output			
39	Ground	NATS antenna amp.	Input/Output	Insert mechanical key into ignition key cylinder		Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
40	Ground	NATS antenna amp.	Input/Output	Insert mechanical key into ignition key cylinder		Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
41	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
42	Ground	Interior room lamp power supply	Output	After passing the interior room lamp battery saver operation time		0 V
				Any other time after passing the interior room lamp battery saver operation time		Battery voltage
43	Ground	Rear wiper motor	Output	Rear wiper switch OFF		0 V
				Rear wiper switch ON		Battery voltage
44	Ground	Rear wiper auto stop	Input	Rear wiper stop position		0 V
				Any position other than rear wiper stop position		
45	Ground	Back door opener actuator	Output	Back door opener switch	Pressed	Battery voltage (300ms)
					Not pressed	0 V
47	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch LH	 6.5 V
48	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch OFF	0 V
					Turn signal switch RH	 6.5 V
49	Ground	Rear fog lamp	Output	Lighting switch 1ST and front fog lamp switch ON	Rear fog lamp switch OFF	0 V
					Rear fog lamp switch ON	Battery voltage
50*1	Ground	Door lock status switch	Input	Driver side door	Unlock	5 V
					Lock	0V

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/Output			
51	Ground	Stop lamp switch	Input	Depress the brake pedal		Battery voltage
				Release the brake pedal		0 V
52	Ground	Room lamp timer control	Output	Interior room lamp	OFF	Battery voltage
					ON	0 V
53	Ground	Power window power supply	Output	Ignition switch	OFF or ACC	0 V
					ON	Battery voltage
54	Ground	Door unlock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0 V
55	Ground	Ground	—	Ignition switch ON		0 V
56	Ground	Door lock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	0 V
					Pressed to the lock side	Battery voltage
57	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
58	Ground	Power window power supply 1	Output	Ignition switch OFF		Battery voltage
59	Ground	Super lock	Output	When lock button of key fob or Intelligent Key is not pressed		0 V
				When lock button of key fob or Intelligent Key is pressed		Battery voltage
60	Ground	Driver door unlock	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0 V

*1: Except for the middle east.

*2: With 6-speakers

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

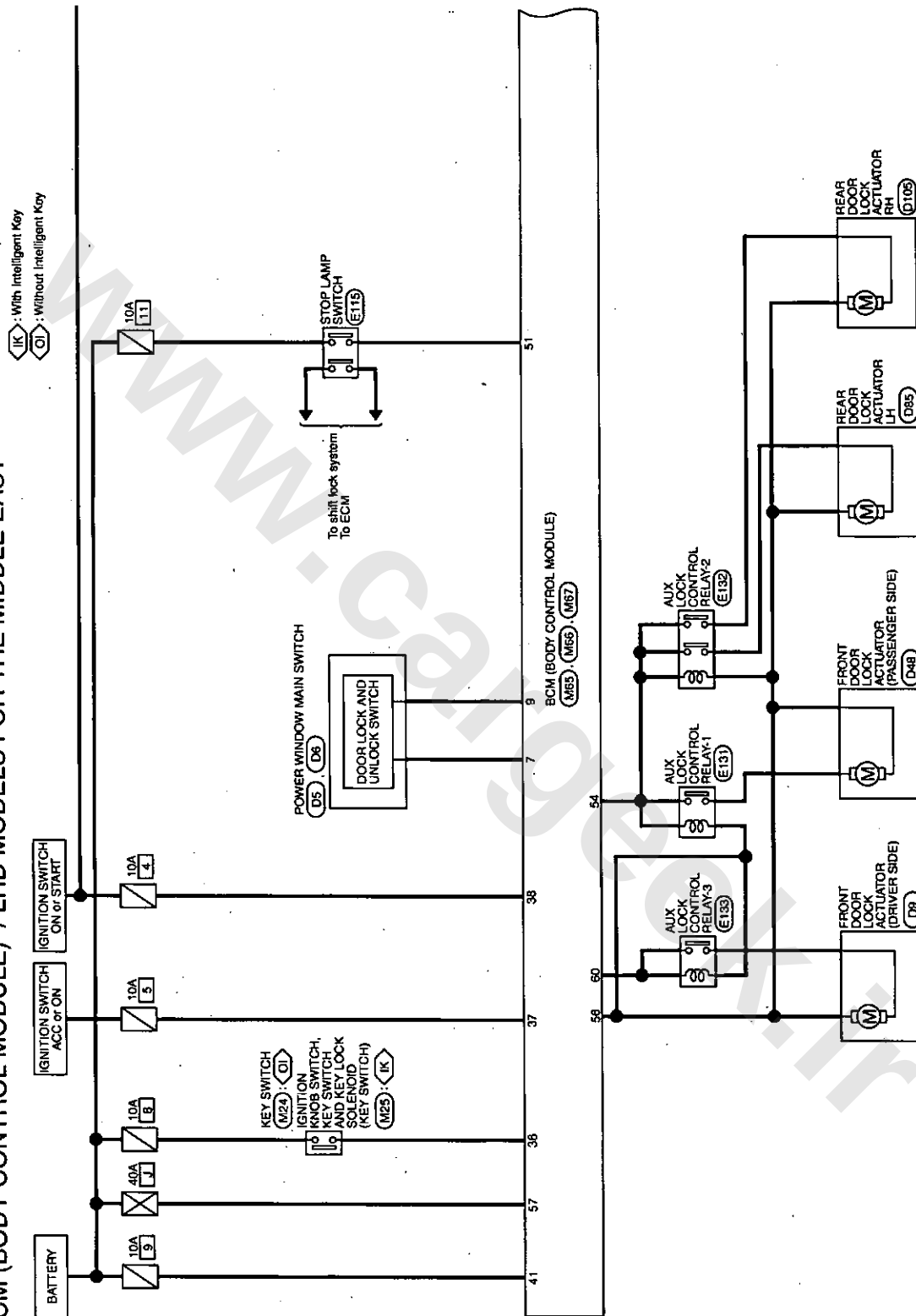
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Wiring Diagram - BCM -

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LHD MODELS FOR THE MIDDLE EAST

BCM (BODY CONTROL MODULE) / LHD MODELS FOR THE MIDDLE EAST



JMMWA0080G1

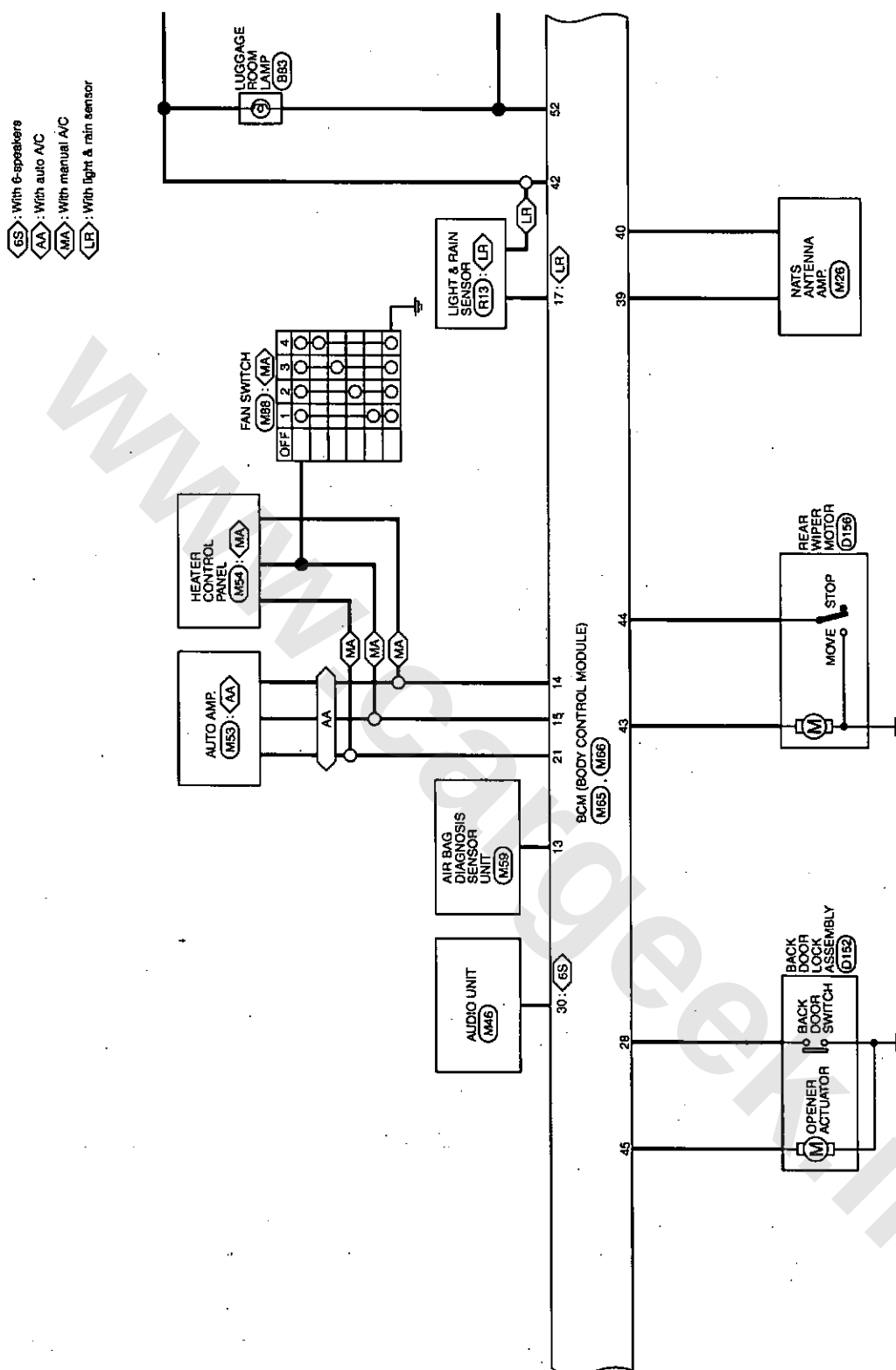
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[WITH INTELLIGENT KEY SYSTEM]

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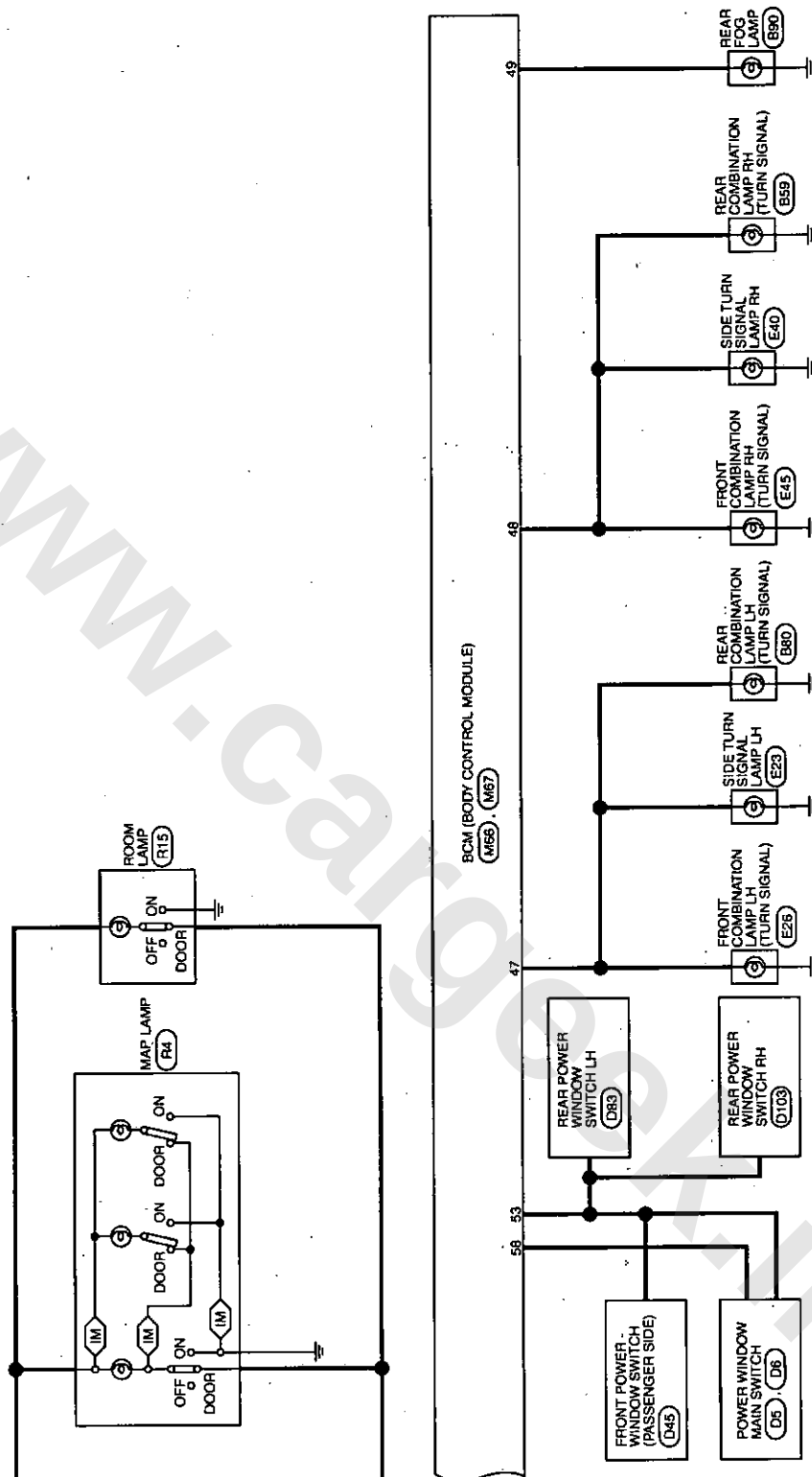
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BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

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(IM) : With integrated map lamp



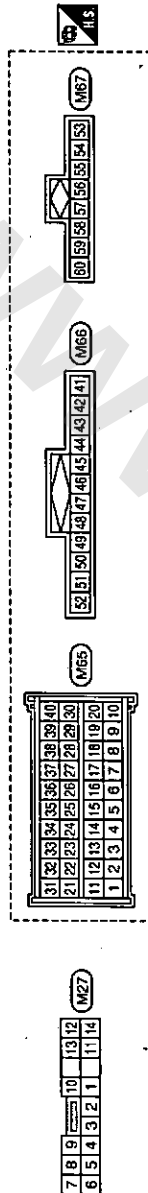
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]



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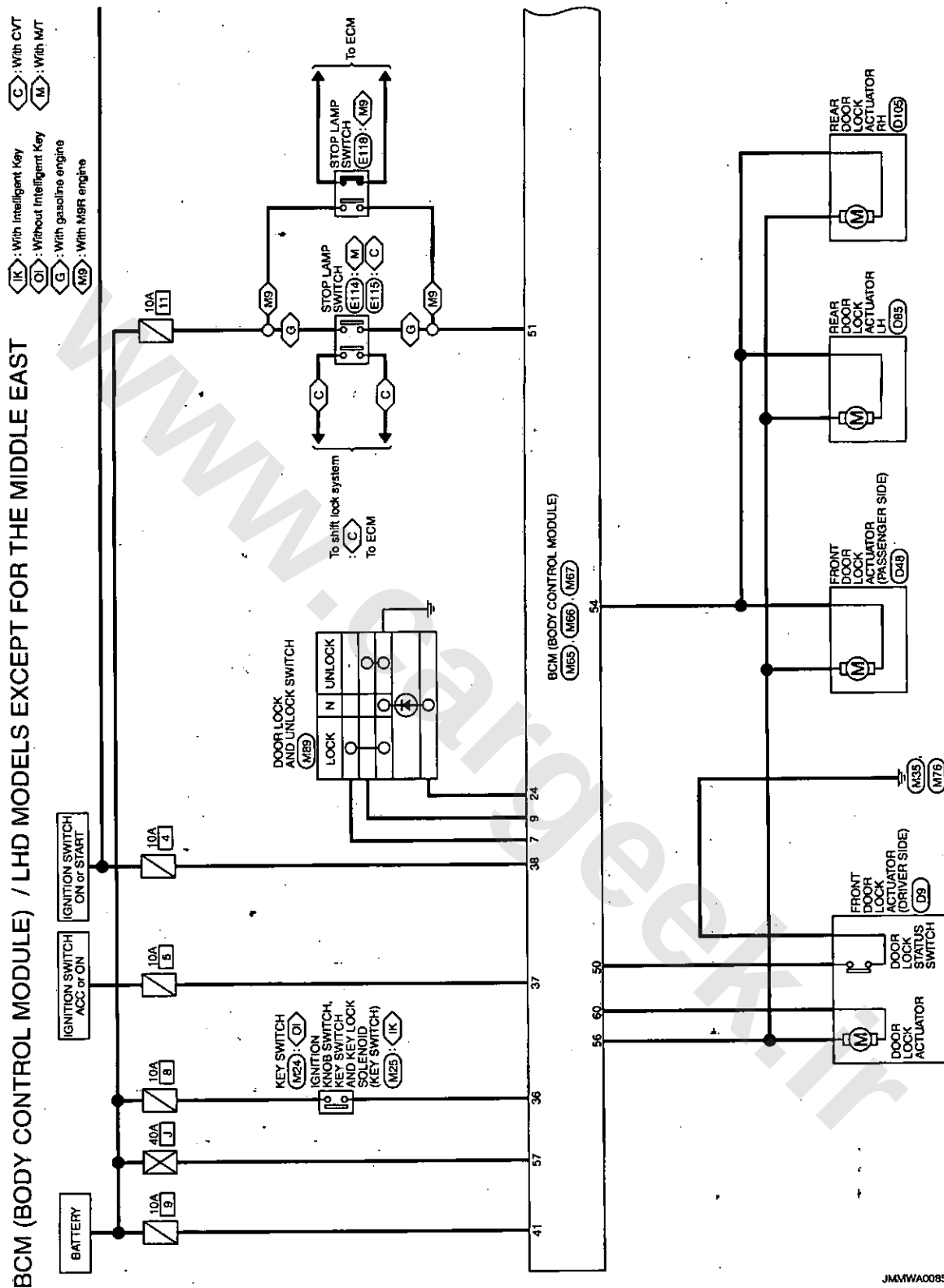
BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

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LHD MODELS EXCEPT FOR THE MIDDLE EAST

BCM (BODY CONTROL MODULE) / LHD MODELS EXCEPT FOR THE MIDDLE EAST



JMMWA0085GI

[WITH INTELLIGENT KEY SYSTEM]

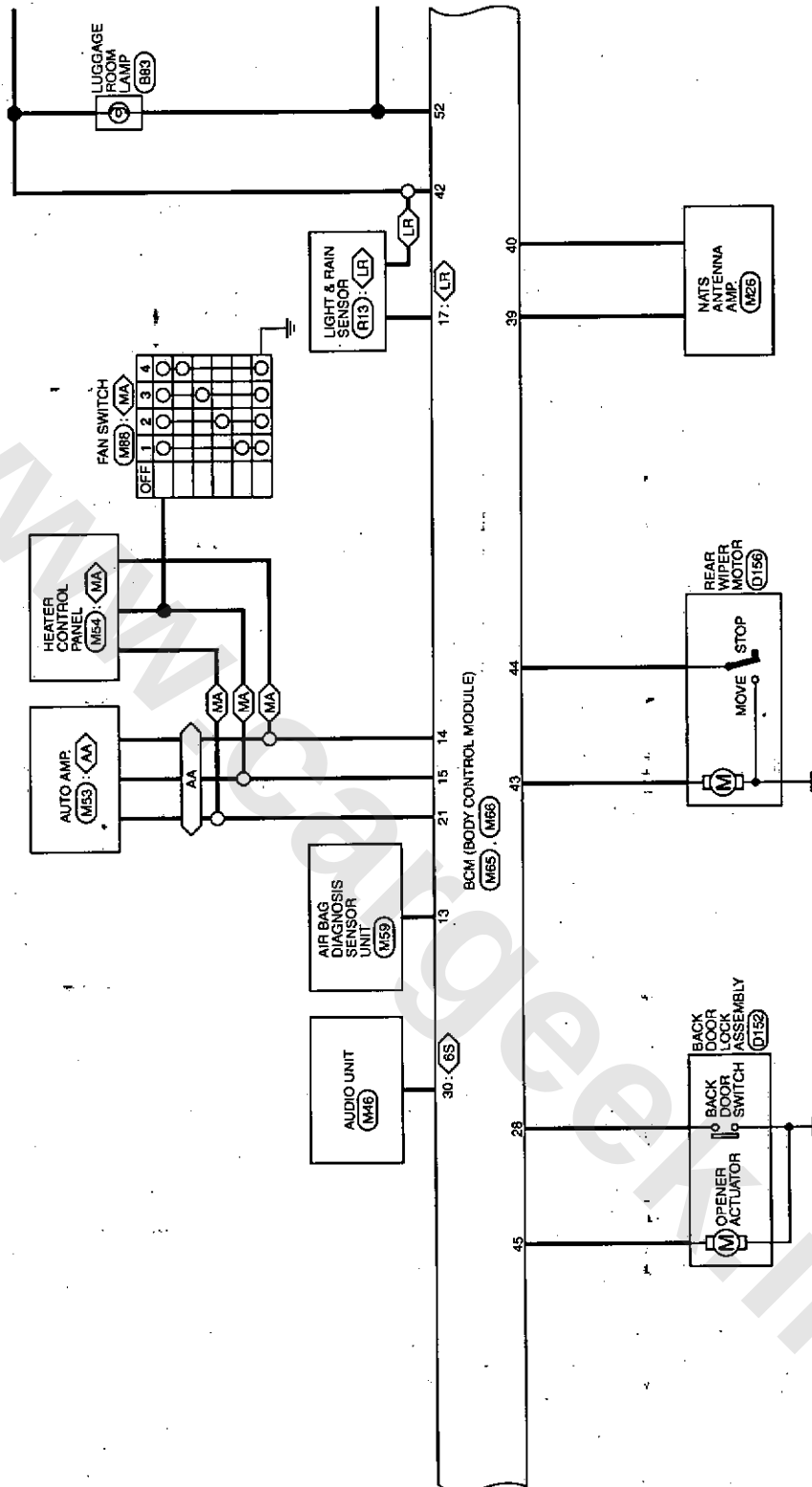
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BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

6S : With 6-speakers
 AA : With auto AC
 MA : With manual AC
 LR : With light & rain sensor



JMMWA0087GI

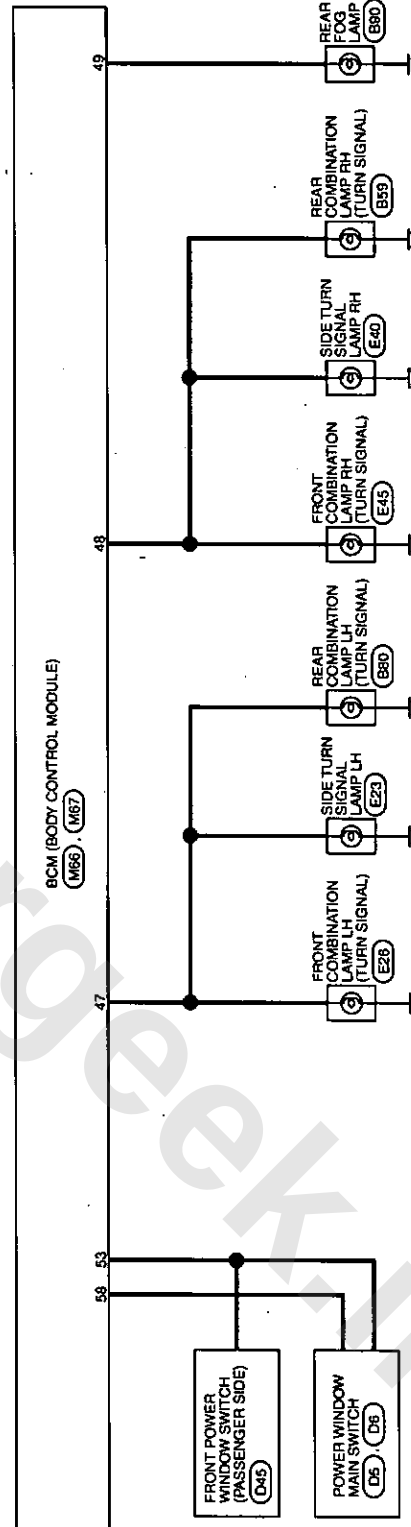
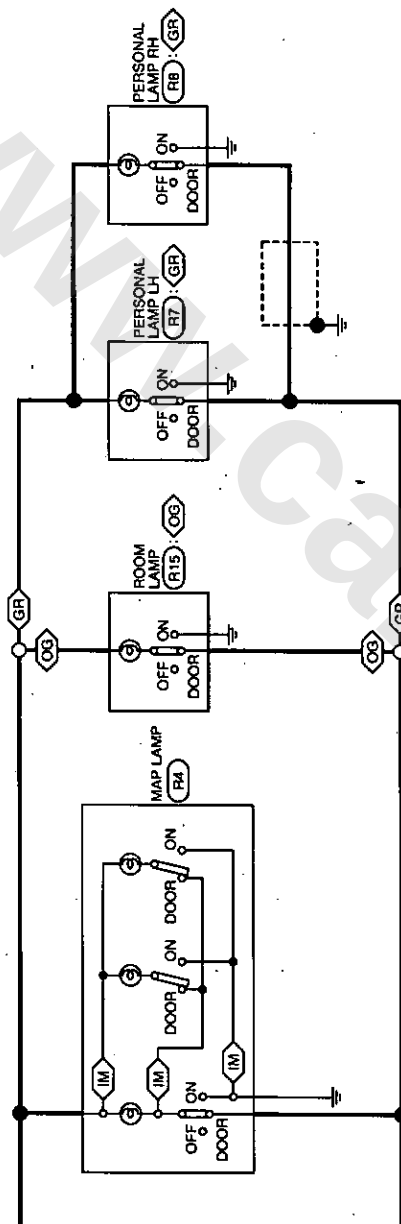
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BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

IM : With integrated map lamp
GR : With glass top roof
OG : Without glass top roof

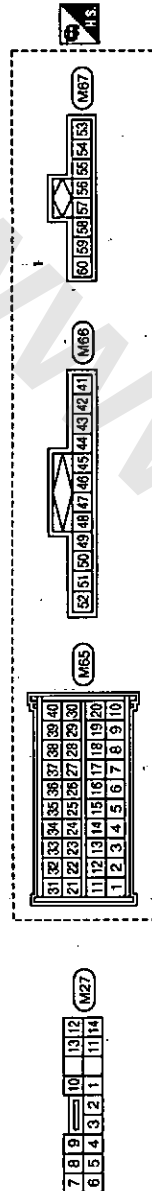


JMMWA0088G1

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >



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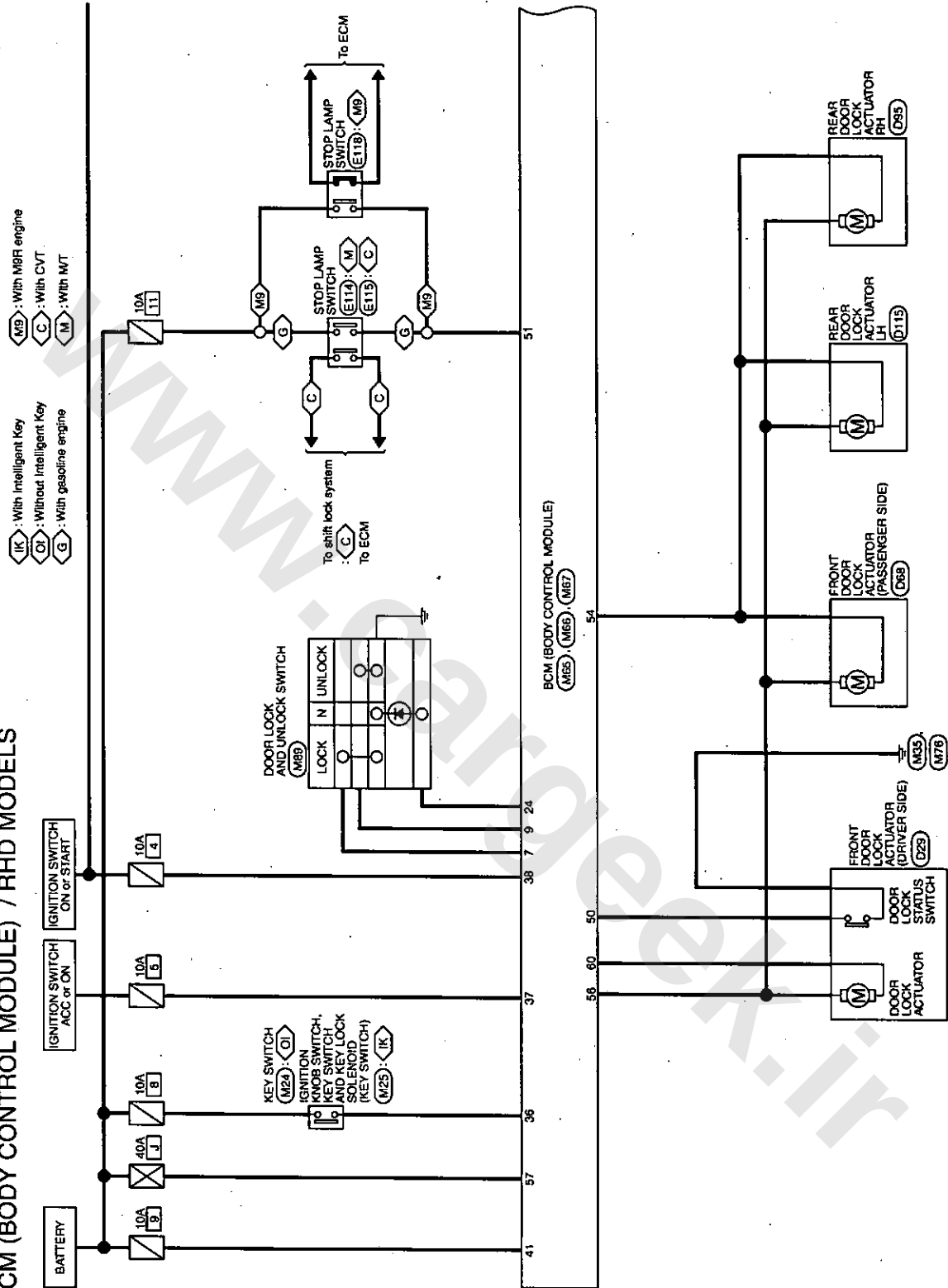
BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

RHD MODELS

BCM (BODY CONTROL MODULE) / RHD MODELS

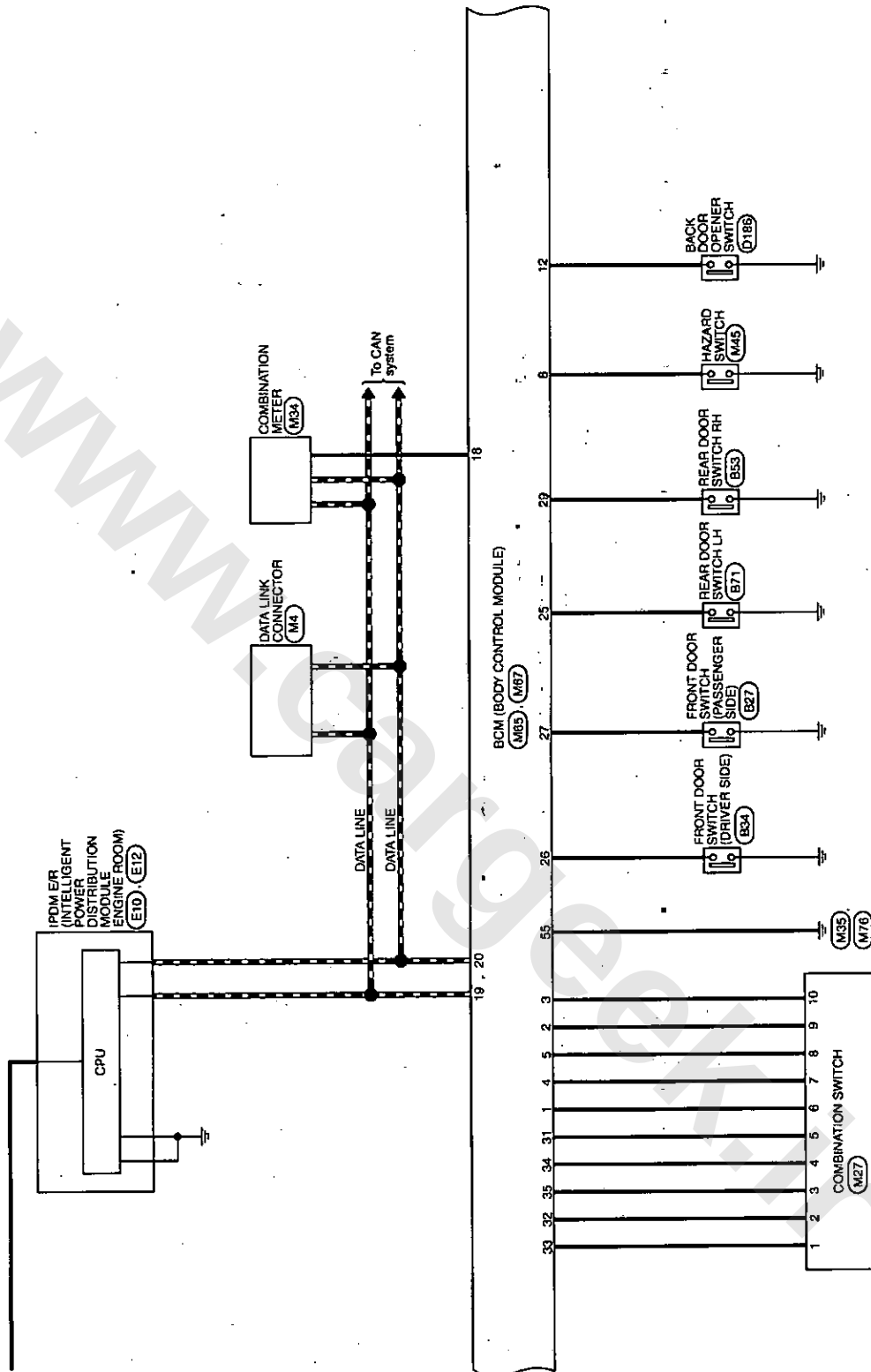


JM/MWA0089G1

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

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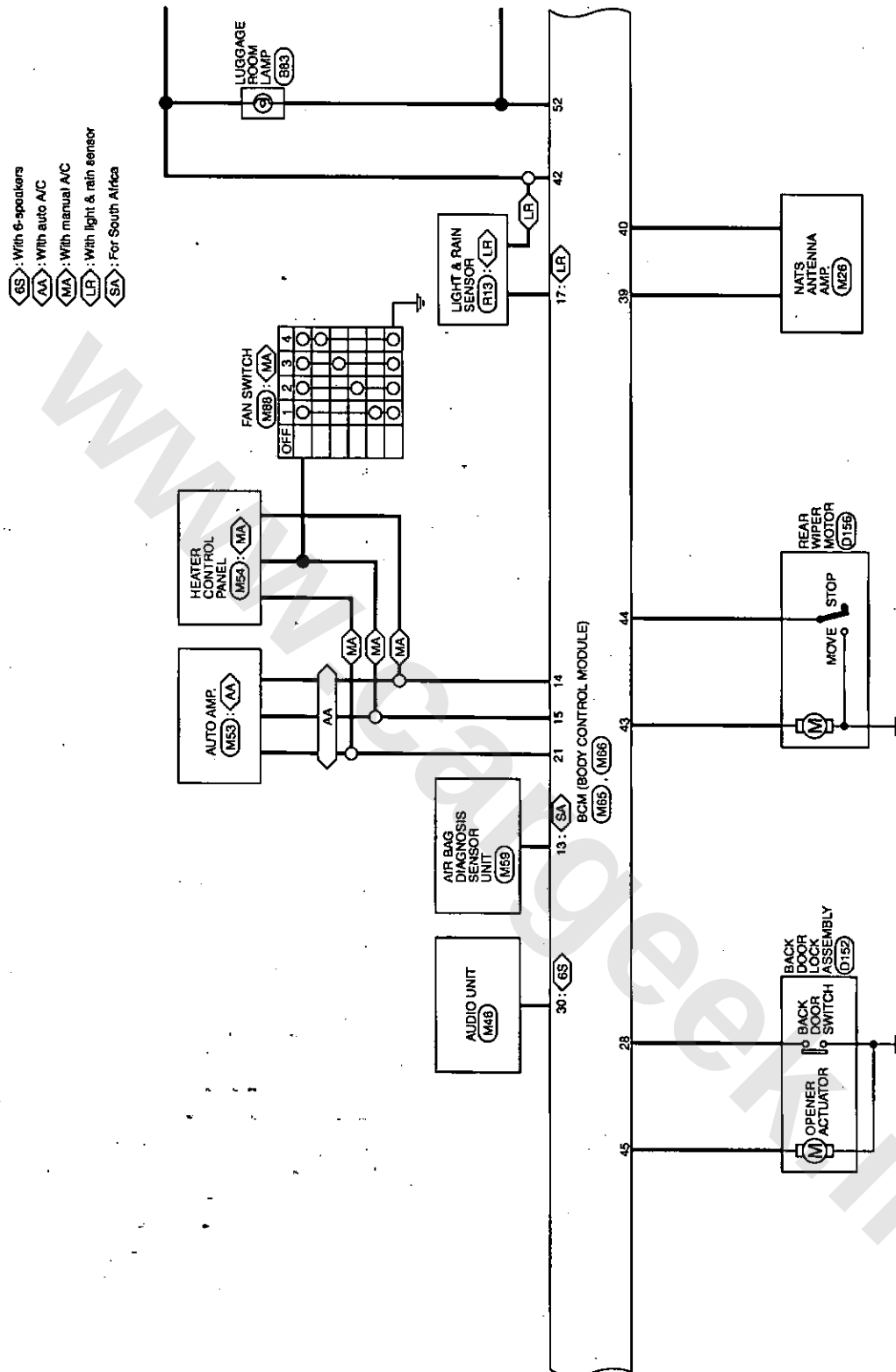
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BCM (BODY CONTROL MODULE)

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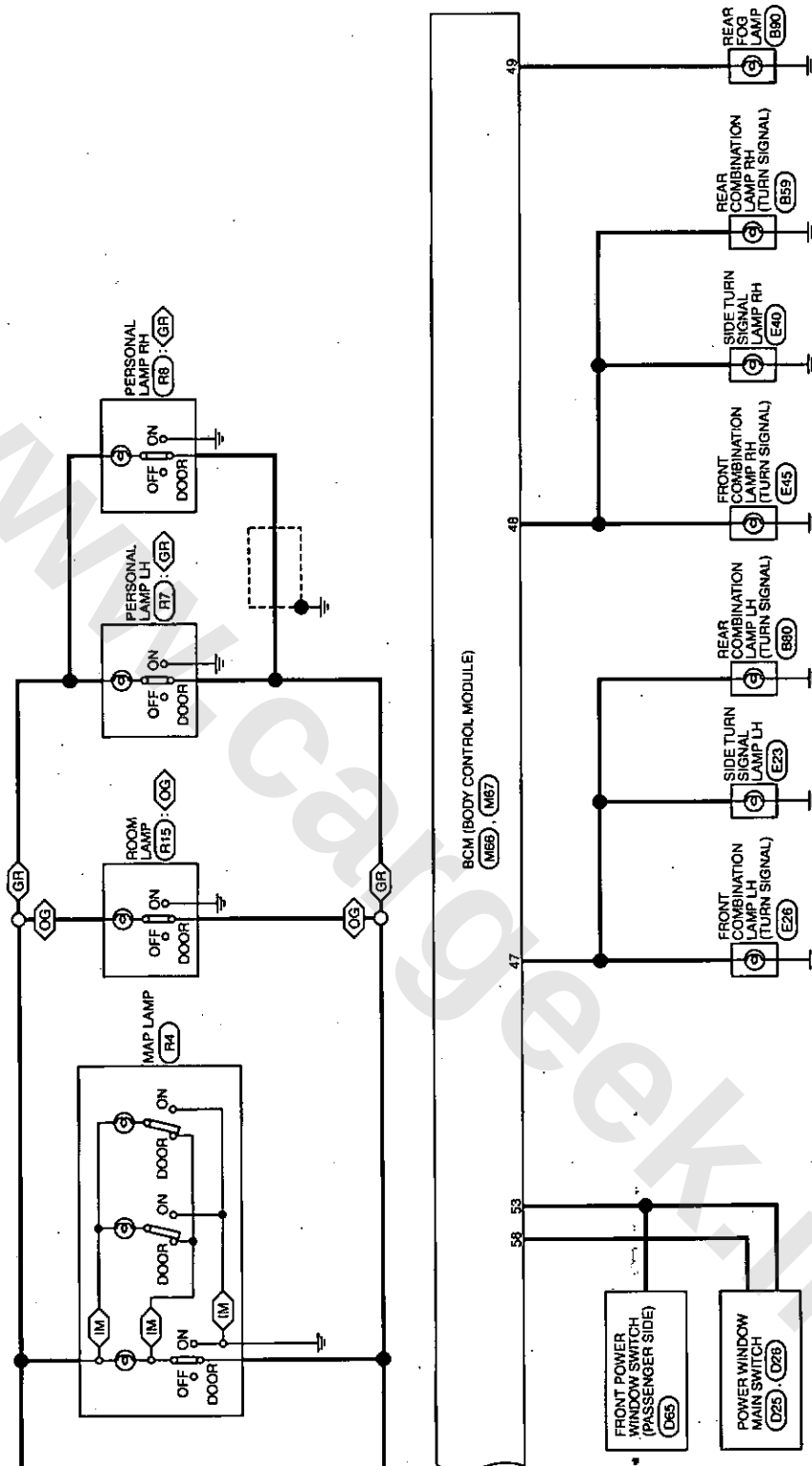
[WITH INTELLIGENT KEY SYSTEM]



JMMWA0091G1

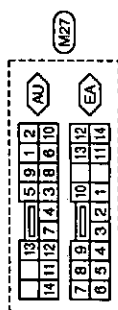
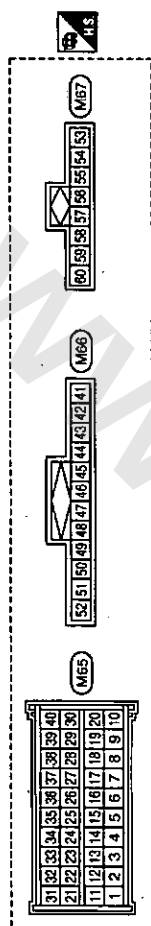
[WITH INTELLIGENT KEY SYSTEM]

IM : With Integrated map lamp
GR : With glass top roof
OG : Without glass top roof



JMMWA0092G!

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AU : For Australia
 EA : Except for AU

JMMWA0083G1

INFOID:000000004939871

Fail-safe

REAR WIPER CONTROL

BCM detects a rear wiper stopping position according to a rear wiper auto stop signal.

When a rear wiper auto stop signal is in the condition listed below, BCM stops power supply to rear wiper after rear wiper is activated for five seconds.

BCM (BODY CONTROL MODULE)

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Ignition switch	Rear wiper switch	Rear wiper auto stop signal
ON	OFF	The rear wiper auto stop signal (stop position) cannot be input for 5 seconds.
	ON	The rear wiper auto stop signal does not change for 5 seconds.

NOTE:

The above operation is repeated when operating the rear wiper switch one minute after the stop of the rear wiper caused by Fail-safe.

TURN SIGNAL LAMP CONTROL

BCM detects the turn signal lamp circuit status from the terminal voltage.

BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

NOTE:

The blinking speed is normal while activating the hazard warning lamp.

LIGHT & RAIN SENSOR MALFUNCTION DETECTION FUNCTION

BCM controls the following items when LIGHT & RAIN sensor has a malfunction.

Auto Light Control

Headlamp is turned ON.

Front Wiper Control

The condition just before the activation of Fail-safe is maintained until the front wiper switch is turned OFF.

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INTELLIGENT KEY UNIT

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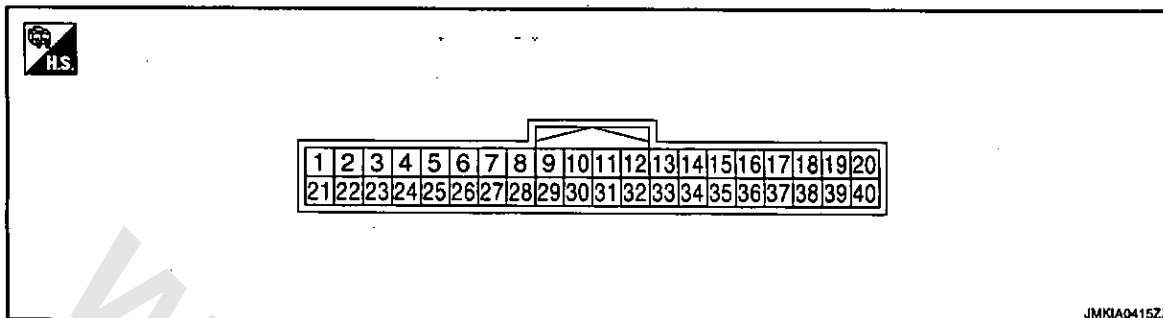
[WITH INTELLIGENT KEY SYSTEM]

INTELLIGENT KEY UNIT

Reference Value

INFOID:0000000004898787

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No.		Wire color	Description		Condition		Value [V] (Approx.)
+	-		Signal name	Input/ Output			
1	Ground	LG	Steering lock unit power supply	Output	Ignition switch	OFF or ACC	5
						ON	0
2	Ground	L	CAN-H	Input/ Output	—		—
3	Ground	P	CAN-L	Input/ Output	—		—
4	Ground	LG	Intelligent Key warning buzzer	Output	Intelligent Key warning buzzer	Sounding	0
						Not sounding	Battery voltage
5	Ground	P	Front door request switch (driver side)	Input	Front door request switch (driver side)	ON (Pressed)	0
						OFF (Released)	5
6	Ground	W	Ignition switch power supply	Input	Ignition switch	OFF or ACC	0
						ON or START	Battery voltage
7	Ground	V	Key switch	Input	When ignition key is inserted into ignition key cylinder		Battery voltage
					When ignition key is not inserted into ignition key cylinder		0
11	Ground	V	Battery power supply	Input	Ignition switch OFF		Battery voltage
12	Ground	B	Ground	—	Ignition switch ON		0

INTELLIGENT KEY UNIT

< ECU DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No.		Wire color	Description		Condition		Value [V] (Approx.)
+	-		Signal name	Input/ Output			
13	Ground	Y	Inside key antenna (+) (rear seat)	Output	Ignition knob is pressed.	When Intelligent Key is in the antenna de- tection area	JMK1A0393ZZ
						When Intelligent Key is not in the antenna detection area	JMK1A0391ZZ
14	Ground	W	Inside key antenna (-) (rear seat)	Output	Ignition knob is pressed.	When Intelligent Key is in the antenna de- tection area	JMK1A0392ZZ
						When Intelligent Key is not in the antenna detection area	JMK1A0390ZZ
15	Ground	SB	Inside key antenna (+) (console)	Output	Ignition knob is pressed.	When Intelligent Key is in the antenna de- tection area	JMK1A0393ZZ
						When Intelligent Key is not in the antenna detection area	JMK1A0391ZZ

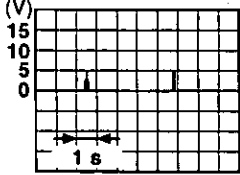
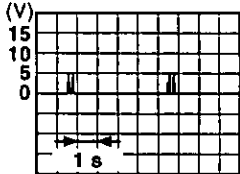
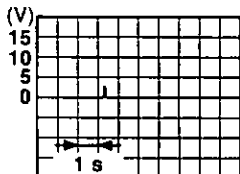
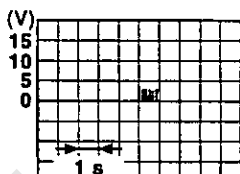
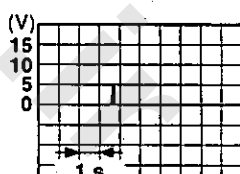
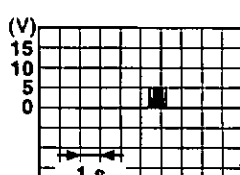
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SEC

INTELLIGENT KEY UNIT

< ECU DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No.		Wire color	Description		Condition		Value [V] (Approx.)
+	-		Signal name	Input/Output			
16	Ground	BR	Inside key antenna (-) (console)	Output	Ignition knob is pressed.	When Intelligent Key is in the antenna detection area	 JMKIA0392ZZ
						When Intelligent Key is not in the antenna detection area	 JMKIA0390ZZ
17	Ground	SB	Outside key antenna (+) (rear bumper)	Output	When the back door request switch is operated with ignition switch OFF	When Intelligent Key is in the antenna detection area	 JMKIA0397ZZ
						When Intelligent Key is not in the antenna detection area	 JMKIA0514ZZ
18	Ground	V	Outside key antenna (-) (rear bumper)	Output	When the back door request switch is operated with ignition switch OFF	When Intelligent Key is in the antenna detection area	 JMKIA0395ZZ
						When Intelligent Key is not in the antenna detection area	 JMKIA0515ZZ

INTELLIGENT KEY UNIT

< ECU DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No.		Wire color	Description		Condition	Value [V] (Approx.)
+	-		Signal name	Input/ Output		
19	Ground	L	Outside key antenna (+) (driver side)	Output	When Intelligent Key is in the antenna de- tection area	 JMK1A0397ZZ
					When the front door re- quest switch (driver side) is operated with ignition switch OFF	 JMK1A0514ZZ
20	Ground	BR	Outside key antenna (-) (driver side)	Output	When Intelligent Key is in the antenna de- tection area	 JMK1A0395ZZ
					When the front door re- quest switch (driver side) is operated with ignition switch OFF	 JMK1A0515ZZ
22 ^{*1}	Ground	W	Key lock solenoid	Output	LOCK ^{*2}	Battery voltage
					UNLOCK ^{*2}	0
25	Ground	BR	Front door request switch (passenger side)	Input	Front door request switch (passenger side)	ON (Pressed)
					OFF (Released)	0
27	Ground	L	Ignition knob switch	Input	When ignition knob switch is pressed	Battery voltage
					When ignition knob switch is released	0
29	Ground	GR	Back door request switch	Input	Back door re- quest switch	ON (Pressed)
					OFF (Released)	0
31	Ground	GR	Steering lock unit ground	—	—	0

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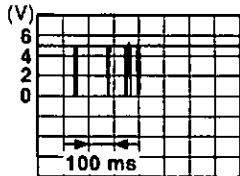
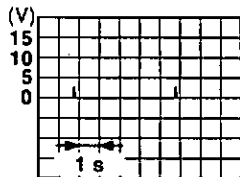
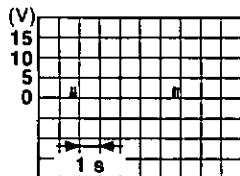
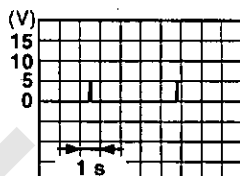
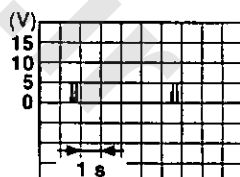
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INTELLIGENT KEY UNIT

< ECU DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

Terminal No.		Wire color	Description		Condition		Value [V] (Approx.)
+	-		Signal name	Input/Output			
32	Ground	P	Steering lock unit communication	Input/Output	Steering lock	LOCK status	5
						LOCK or UNLOCK	 JMKIA0433ZZ
33	Ground	O	Inside key antenna (+) (instrument center)	Output	Ignition knob is pressed.	When Intelligent Key is in the antenna detection area	 JMKIA0393ZZ
						When Intelligent Key is not in the antenna detection area	 JMKIA0391ZZ
34	Ground	G	Inside key antenna (-) (instrument center)	Output	Ignition knob is pressed.	When Intelligent Key is in the antenna detection area	 JMKIA0392ZZ
						When Intelligent Key is not in the antenna detection area	 JMKIA0390ZZ

INTELLIGENT KEY UNIT

[WITH INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Wire color	Description		Condition	Value [V] (Approx.)
+	-		Signal name	Input/ Output		
37	Ground	L	Outside key antenna (+) (passenger side)	Output	When the front door request switch (passenger side) is operated with ignition switch OFF	JMKIA0397ZZ
					When Intelligent Key is in the antenna detection area	JMKIA0514ZZ
38	Ground	O	Outside key antenna (-) (passenger side)	Output	When the front door request switch (passenger side) is operated with ignition switch OFF	JMKIA0395ZZ
					When Intelligent Key is not in the antenna detection area	JMKIA0515ZZ

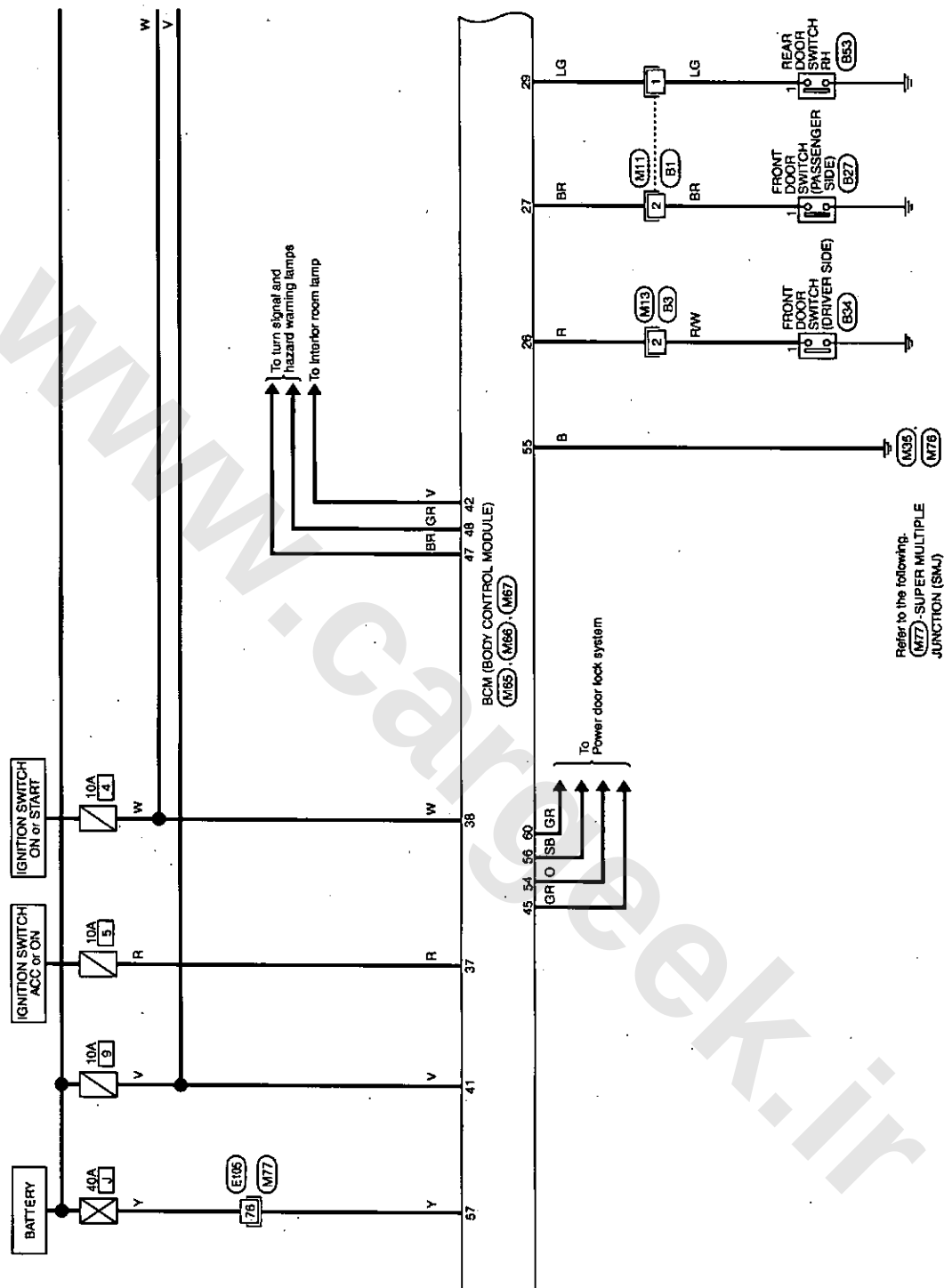
*1: Only for M/T model.

*2: Key interlock operation is only for M/T model for operation condition, refer to SEC-3, "System Description".

[WITH INTELLIGENT KEY SYSTEM]

Wiring Diagram - INTELLIGENT KEY CONTROL SYSTEM/FOR LHD MODELS -

INTELLIGENT KEY SYSTEM / LHD MODELS



Refer to the following.
**(M77)-SUPER MULTIPLE
JUNCTION (SMJ)**

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[WITH INTELLIGENT KEY SYSTEM]

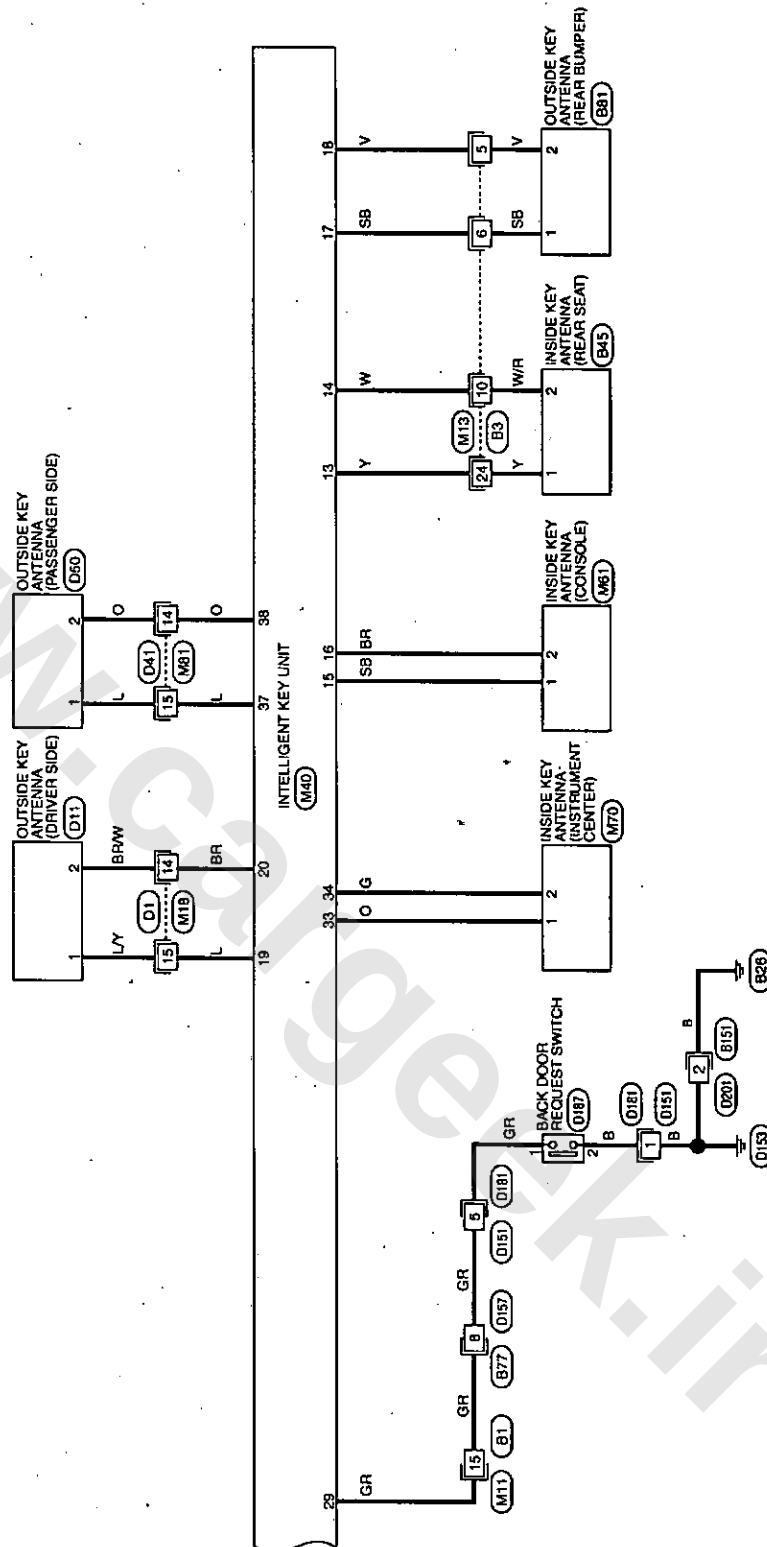
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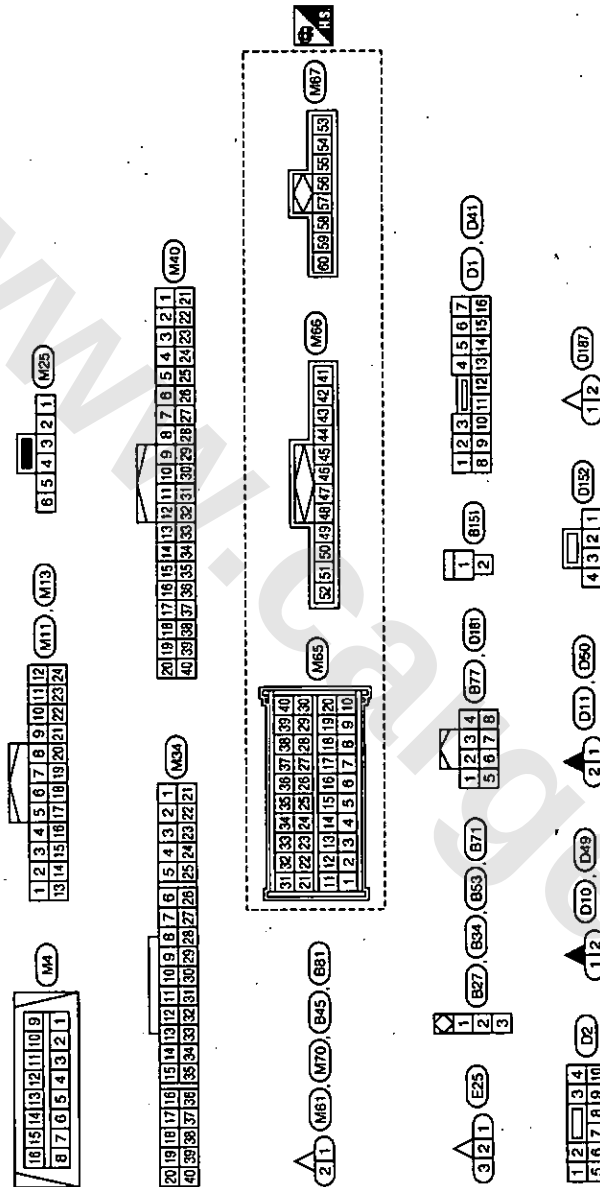
[WITH INTELLIGENT KEY SYSTEM]



JMKWA0055G1

[WITH INTELLIGENT KEY SYSTEM]

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INTELLIGENT KEY UNIT

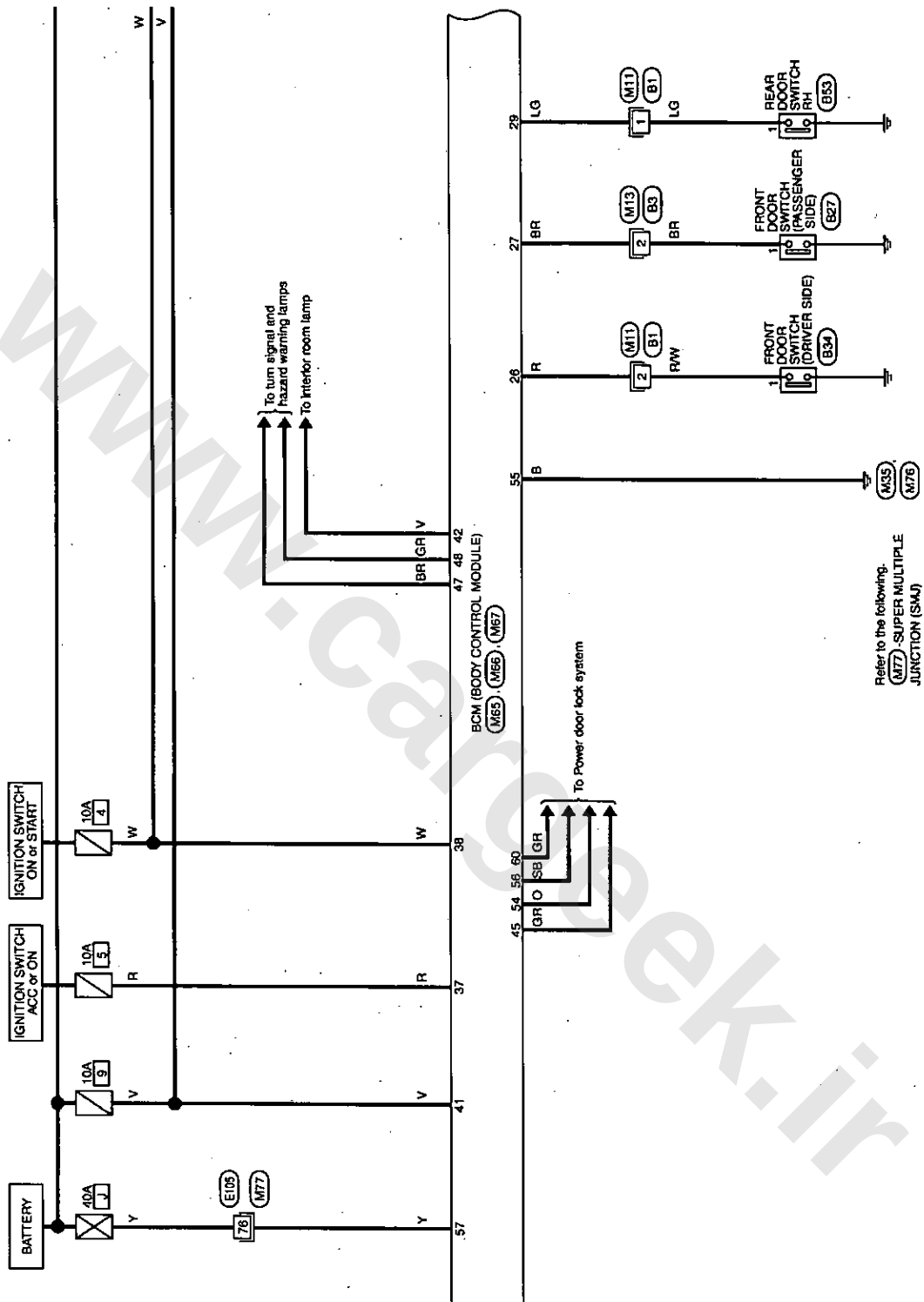
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[WITH INTELLIGENT KEY SYSTEM]

Wiring Diagram - INTELLIGENT KEY CONTROL SYSTEM/FOR RHD MODELS -

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INTELLIGENT KEY SYSTEM / RHD MODELS



JMKWA0057GE

[WITH INTELLIGENT KEY SYSTEM]

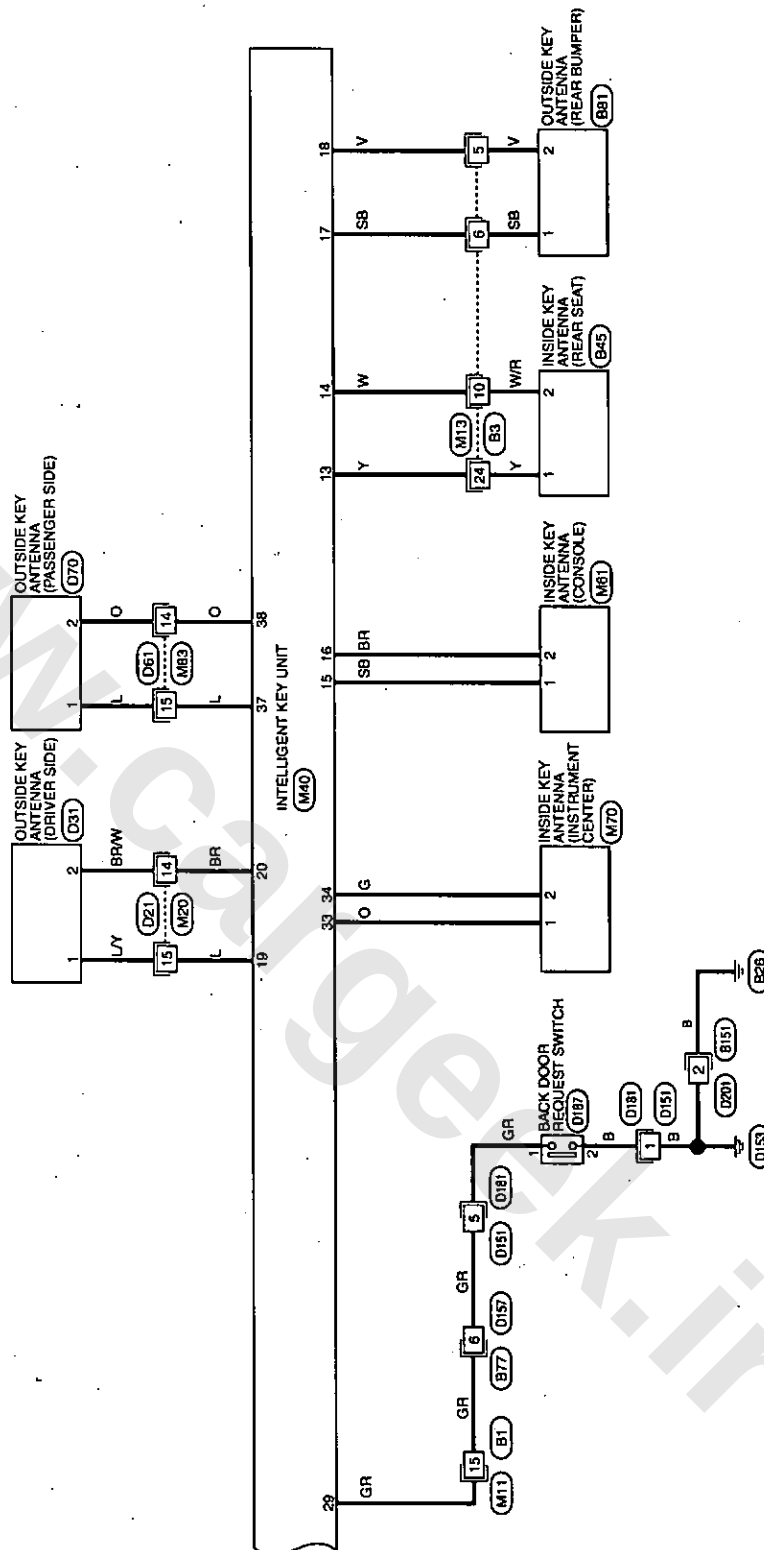
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[WITH INTELLIGENT KEY SYSTEM]

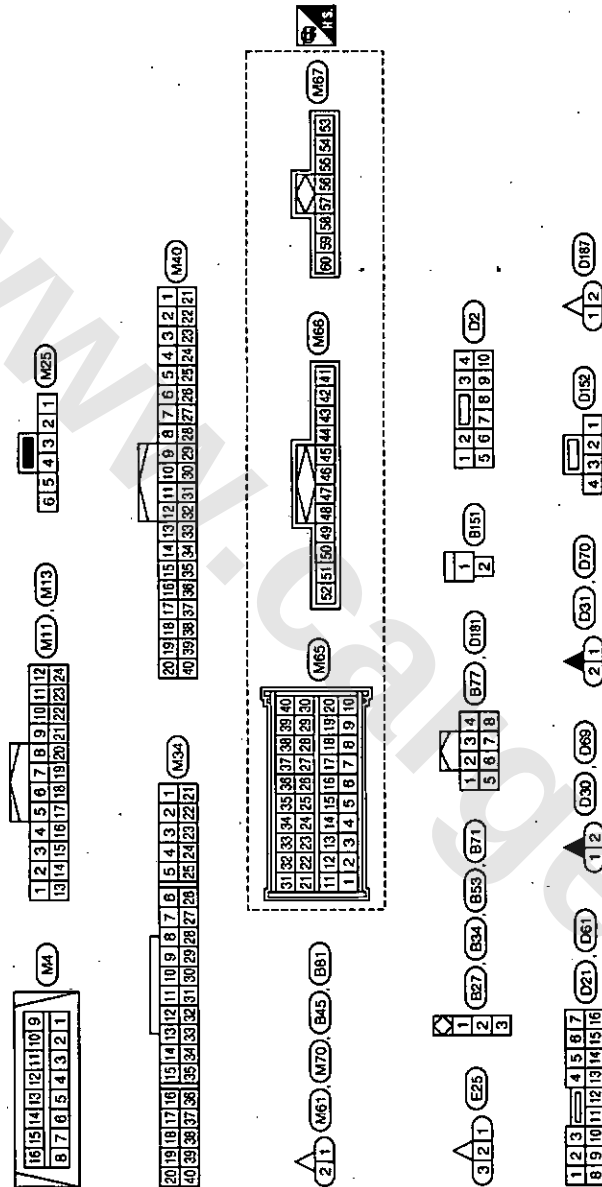


JMKWA0069GE

INTELLIGENT KEY UNIT

[WITH INTELLIGENT KEY SYSTEM]

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INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

INTELLIGENT KEY SYSTEM/ENGINE START FUNCTION SYMPTOMS

Symptom Table

INFOID:0000000004898793

NOTE:

- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom.
- If the following symptoms are detected, check systems shown in the "Diagnosis/service procedure" column in this order.

CONDITIONS OF VEHICLE (OPERATING CONDITIONS)

- Mechanical key is not inserted in key cylinder.
- One or more of Intelligent Keys with registered Intelligent Key ID is in the vehicle.

Symptom	Diagnosis/service procedure	Reference page
Ignition switch does not turn on with Intelligent Key. [KEY warning lamp (green) illuminates.]	1. Check steering lock unit.	—
	2. Replace Intelligent Key unit.	DLK-244
Ignition switch does not turn on with Intelligent Key. [KEY warning lamp does not illuminate.]	1. Check Intelligent Key unit power supply and ground circuit.	SEC-10
	2. Check ignition knob switch.	SEC-14
	3. Check key switch.	SEC-12
	4. Replace Intelligent Key unit.	DLK-244
Ignition switch does not turn on with Intelligent Key. [KEY warning lamp (red) illuminates.]	1. Check inside key antenna.	DLK-100
	2. Replace Intelligent Key unit.	DLK-244
Ignition switch does not turn on with mechanical key	Check key switch.	SEC-12
Engine cannot start	1. Check key switch.	SEC-12
	2. Check stop lamp switch.	SEC-16

NATS (NISSAN ANTI-THEFT SYSTEM) SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITH INTELLIGENT KEY SYSTEM]

NATS (NISSAN ANTI-THEFT SYSTEM) SYMPTOMS

Symptom Table

INFOID:0000000004898794

NOTE:

- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom.
- If the following symptoms are detected, check systems shown in the "Diagnosis/service procedure" column in this order.

CONDITIONS OF VEHICLE (OPERATING CONDITIONS)

Ignition knob switch is not depressed.

Symptom	Diagnosis/service procedure	Reference page
Engine cannot start.	1. Check stop lamp switch	SEC-16
	2. Check Intermittent Incident	GI-38
Security indicator lamp does not turn ON or flash.	1. Check security indicator lamp	SEC-18
	2. Check Intermittent Incident	GI-38

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PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000005022844

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIR BAG".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:0000000004983575

NOTE:

- This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

2. Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.
5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)

PRECAUTIONS

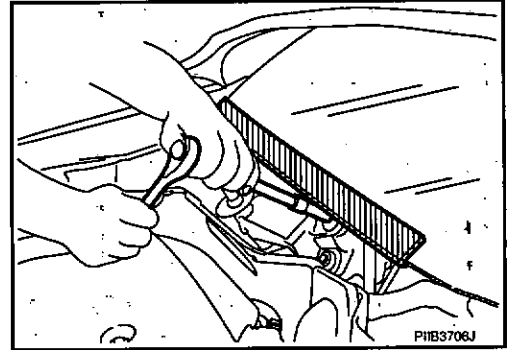
[WITH INTELLIGENT KEY SYSTEM]

< PRECAUTION >

Precaution for Procedure without Cowl Top Cover

INFOID:000000004983576

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



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SEC

ON-VEHICLE MAINTENANCE**PRE-INSPECTION FOR DIAGNOSTIC****Basic Inspection**

INFOID:0000000004898798

The engine start function, door lock function, and NATS in the Intelligent Key system are closely related to each other regarding control. Narrow down the functional area in question by performing basic inspection to identify which function is malfunctioning. The vehicle security function can operate only when the door lock is operating normally. Therefore, it is easy to identify any factor unique to the vehicle security system by performing the vehicle security operation check after basic inspection.

1.CHECK DOOR LOCK OPERATION

Check the door lock for normal operation with the Intelligent Key and door request switch. Successful door lock operation with the Intelligent Key and request switch indicates that the remote keyless entry receiver and inside key antenna required for engine start are functioning normally. Identify the malfunctioning point by referring to the DLK section if the door cannot be unlocked.

Can the door be locked with the Intelligent Key and door request switch?

YES >> GO TO 2.

NO >> Refer to DLK-168, "INTELLIGENT KEY : Symptom Table".

2.CHECK IGNITION KNOB SWITCH OPERATION-1

With all registered Intelligent Keys, check if ignition knob can rotate when carrying Intelligent Key inside the vehicle.

Does ignition knob rotate?

YES >> GO TO 3.

NO >> Refer to SEC-66, "Symptom Table".

3.CHECK IGNITION KNOB SWITCH OPERATION-2

Insert registered mechanical key into key cylinder, and check if ignition knob can rotate. Check for all registered mechanical keys.

Does ignition knob rotate?

YES >> INSPECTION END.

NO (Does not rotate with some of mechanical keys)>>Perform mechanical key registration.

NO (Does not rotate with all mechanical keys)>>Refer to SEC-67, "Symptom Table".

NATS ANTENNA AMP.

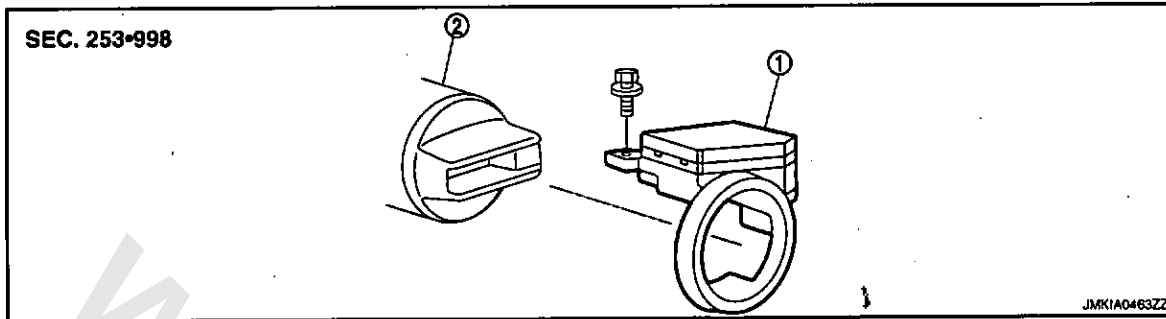
[WITH INTELLIGENT KEY SYSTEM]

< ON-VEHICLE REPAIR >

ON-VEHICLE REPAIR

NATS ANTENNA AMP.

Exploded View



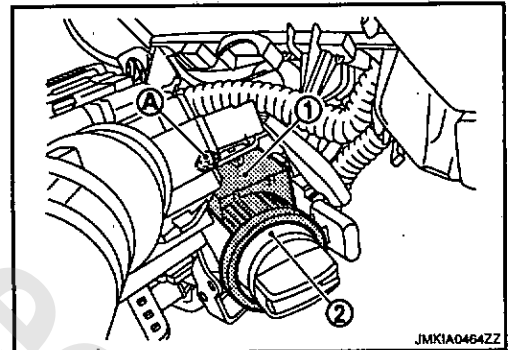
1. NATS antenna amp. 2. Steering lock assembly

Refer to SEC-71, "Removal and Installation".

Removal and Installation

REMOVAL

1. Remove the steering column cover.
Refer to ST-10, "Exploded View" and IP-12, "Removal and Installation".
2. Remove the NATS antenna amp. mounting bolt (A), and then remove NATS antenna amp. (1) from steering lock assembly (2).



INSTALLATION

Install in the reverse order of removal.

NATS (NISSAN ANTI-THEFT SYSTEM)

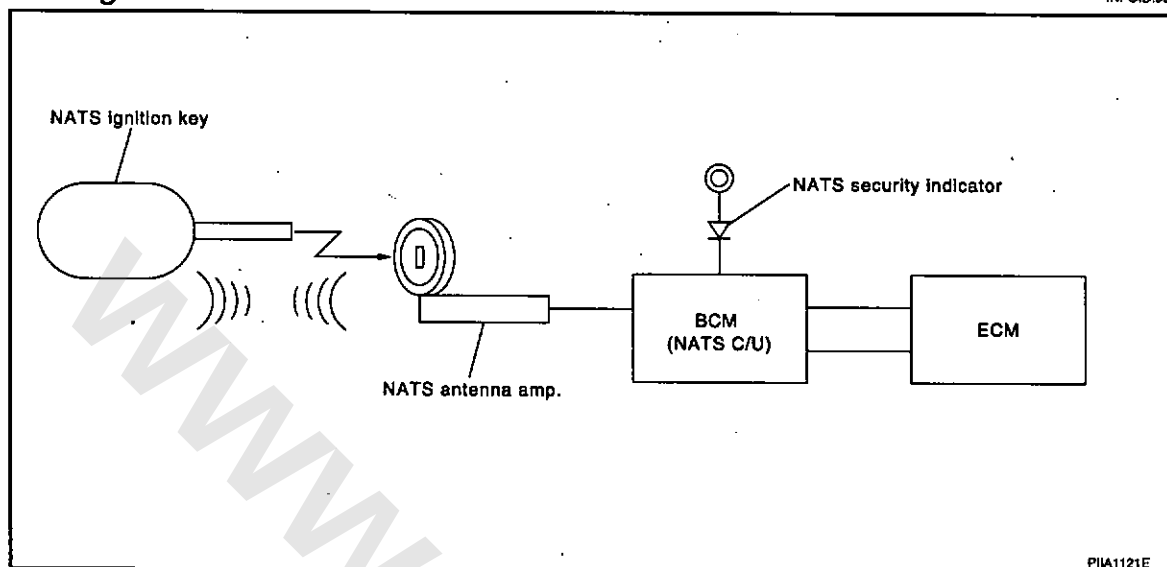
< FUNCTION DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

FUNCTION DIAGNOSIS

NATS (NISSAN ANTI-THEFT SYSTEM)

System Diagram



System Description

INFOID:0000000004898807

SYSTEM DESCRIPTION

NATS (Nissan Anti-Theft System) has the following immobilizer functions:

- Engine immobilizer shows high anti-theft performance to prevent engine start by other than the owner.
- Only a key with key ID registered in BCM and ECM can start engine, and shows high anti-theft performance to prevent key from being copied or stolen.
- Security indicator lamp always flashes with ignition key removed condition (key switch: OFF).
- If system detects malfunction, security indicator lamp illuminate when ignition switch is turned to ON position.
- If the owner requires, ignition key ID can be registered for up to 5 keys.
- If ECM other than Genuine NISSAN is installed, the engine cannot be started. For ECM replacement procedure, refer to EC-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Description".

PRECAUTIONS FOR KEY REGISTRATION

- The key registration is a procedure that erases the current NATS ID once, and then re-registers a new ID. Therefore the registered ignition key is necessary for this procedure. Before starting the registration operation collect all registered ignition keys from the customer
- The NATS ID registration is the procedure that registers the ID stored into the transponder (integrated in ignition key) to BCM.

SECURITY INDICATOR LAMP

- Security indicator lamp blinks when the ignition switch is in "OFF" or "ACC" position.
- When NATS detects trouble, the security indicator lamp lights up while ignition key is in the "ON" position.

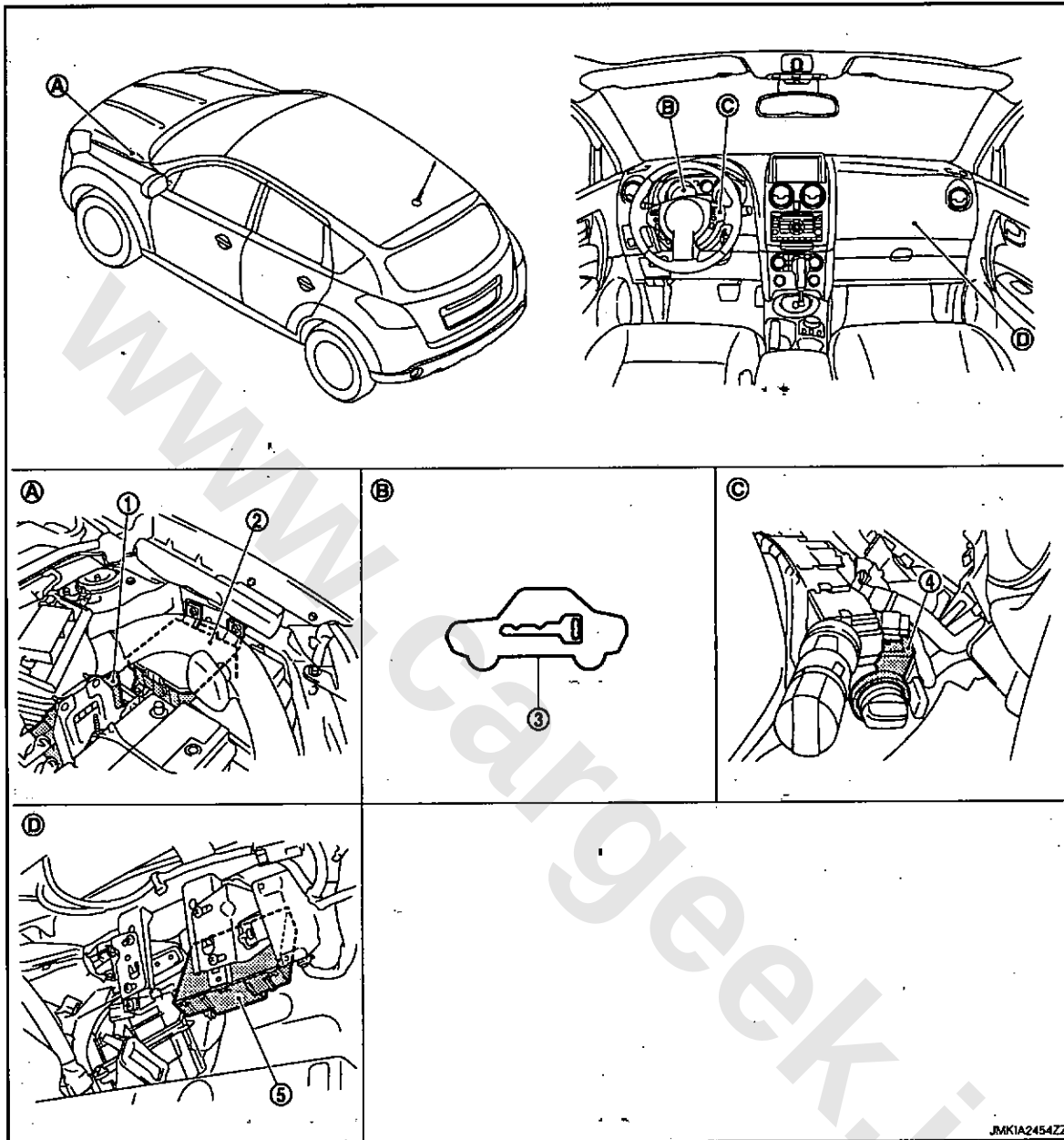
NATS (NISSAN ANTI-THEFT SYSTEM)

< FUNCTION DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

Component Parts Location

INFOID:0000000004898806



1. ECM
 - Gasoline engine E16
 - M9R engine E121

4. NATS antenna amp.
M26

- A. Engine room (LH)

- D. Over the glove box

2. IPDM E/R
E10, E11, E12, E13, E14

5. BCM
M65, M66, M67

- B. Built in combination meter

3. Security indicator lamp
 - Gasoline engine M34
 - M9R engine M511

- C. View with steering column cover removed

JMK1A2454ZZ

POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

COMPONENT DIAGNOSIS

POWER SUPPLY AND GROUND CIRCUIT

BCM

BCM : Diagnosis Procedure

INFOID:000000000489849

1.CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not fusing.

Terminal No.	Signal name	Fuses and fusible link No.
41	Battery power supply	9
57		J
38	Ignition power supply	4

Is the fuse fusing?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or fusible link is blown.

NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connectors.
3. Check voltage between BCM harness connector and ground.

(+)		(-)	Ignition switch position		
BCM			OFF	ACC	ON
Connector	Terminal	Ground	Approx. 0 V	Approx. 0 V	Battery voltage
M65	38		Battery voltage	Battery voltage	Battery voltage
M66	41				
M67	57				

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3.CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M67	55		Existed

Does continuity exist?

YES >> INSPECTION END

NO >> Repair or replace harness.

SECURITY INDICATOR LAMP

< COMPONENT DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SECURITY INDICATOR LAMP

Description

INFOID:000000004898850

- Security indicator lamp is built in combination meter.
- NATS (Nissan Anti-Theft System) and vehicle security system conditions are indicated by blink or illumination of security indicator lamp.

Diagnosis Procedure

INFOID:000000004898852

1.CHECK SECURITY INDICATOR LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check voltage between combination meter harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
Combination meter			
Connector	Terminal		
M34	1	Ground	Battery voltage

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness.

2.CHECK SECURITY INDICATOR LAMP SIGNAL

1. Connect security indicator lamp connector.
2. Disconnect BCM connector.
3. Check voltage between BCM harness connector and ground.

(+)		(-)	Voltage (V) (Approx.)
BCM			
Connector	Terminal		
M65	18	Ground	Battery voltage

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-46, "Removal and Installation"](#).

NO >> GO TO 3.

3.CHECK SECURITY INDICATOR LAMP SIGNAL CIRCUIT

1. Disconnect BCM connector.
2. Check continuity between BCM harness connector and combination meter harness connector.

BCM		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
M65	18	M34	28	Existed

3. Check continuity between combination meter harness connector and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M34	28		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair or replace harness.

4.CHECK SECURITY INDICATOR LAMP

Refer to [SEC-76, "Component Inspection \(Combination Meter\)"](#).

SECURITY INDICATOR LAMP

[WITHOUT INTELLIGENT KEY SYSTEM]

< COMPONENT DIAGNOSIS >

Is the inspection result normal?

YES >> GO TO 5.

NO >> Replace combination meter. Refer to MWI-53, "Removal and Installation".

5.CHECK INTERMITTENT INCIDENT

Refer to GI-38, "Intermittent Incident".

>> INSPECTION END

Component Inspection (Combination Meter)

INFOID:0000000004896853

1.CHECK SECURITY INDICATOR LAMP

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter terminals.

Terminal		Continuity
Combination meter		
(+)*	(-)*	
1	28	Existed
28	1	Not existed

*: For digital tester.

NOTE:

- Use a tester that can perform LED (Light-Emitting Diode) measurement.
- The polarity (+ and -) reverses when checking using an analog tester.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace combination meter. Refer to MWI-53, "Removal and Installation".

[WITHOUT INTELLIGENT KEY SYSTEM]

NATS (NISSAN ANTI-THEFT SYSTEM)

INFOID:0000000004898856



★: This connector is not shown in "Harness Layout", PG section.

Refer to the following.

M77 -SUPER MULTIPLE
JUNCTION (SMJ)
M65, **M66**, **M67**, **E16**
-ELECTRICAL UNITS

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

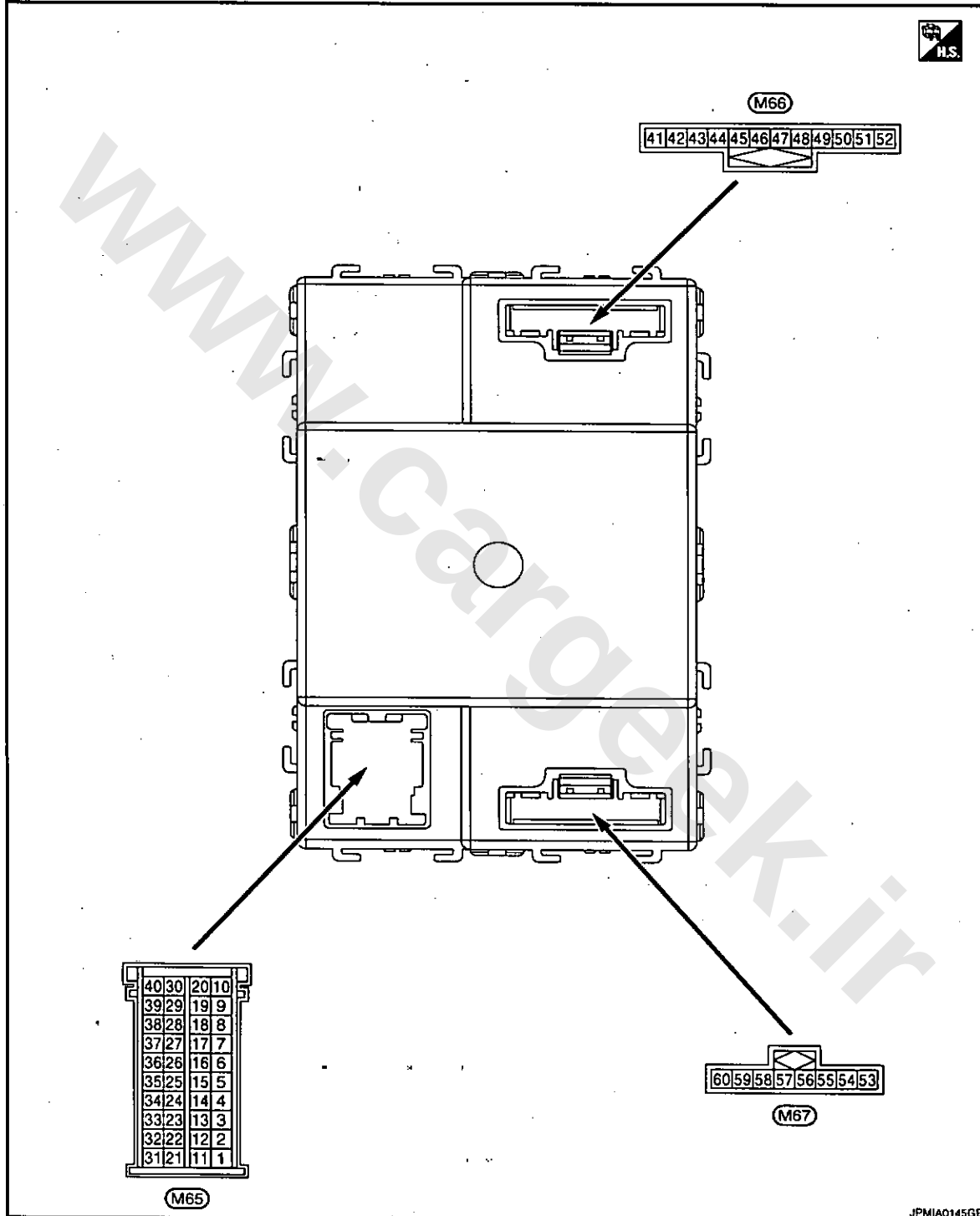
ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000004939875

TERMINAL LAYOUT



JPMIA0145GB

PHYSICAL VALUES

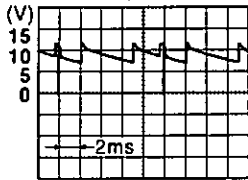
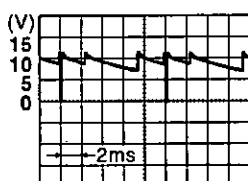
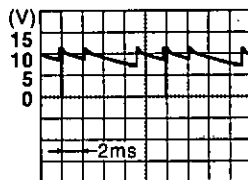
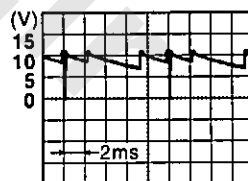
CAUTION:

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF is not to be fluctuated by being overloaded.
- BCM reads the status of the combination switch at 10 ms internal normally. Refer to BCS-4, "System Description".

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
1	Ground	Combination switch OUTPUT 1	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front wiper switch HI (Wiper intermittent dial 4)	 9.1 V
					Rear wiper switch INT (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF	
					• Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3 • Wiper intermittent dial 6 • Wiper intermittent dial 7	
2	Ground	Combination switch OUTPUT 4	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	0 V
					Lighting switch 2ND	 9.3 V
					Lighting switch PASS	
					Front fog lamp switch ON	
					Turn signal switch LH	
3	Ground	Combination switch OUTPUT 3	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	0 V
					Lighting switch AUTO	 9.3 V
					Rear fog lamp switch OFF	
					Front wiper switch MIST	
					Front wiper switch INT	
					Front wiper switch LO	
4	Ground	Combination switch OUTPUT 2	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V
					Front washer switch ON (Wiper intermittent dial 4)	 9.1 V
					Rear wiper switch ON (Wiper intermittent dial 4)	
					Rear washer switch ON (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF	
					• Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	

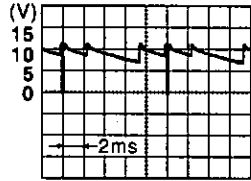
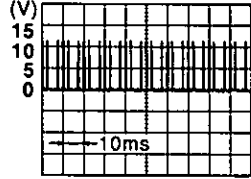
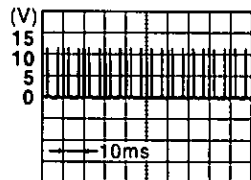
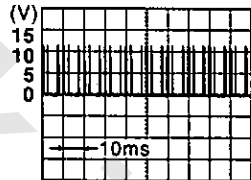
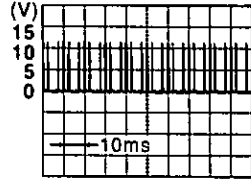
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SEC

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

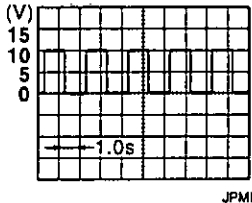
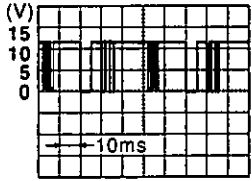
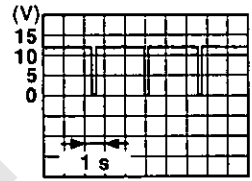
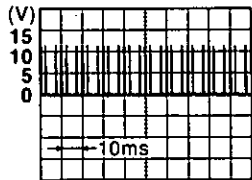
< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
5	Ground	Combination switch OUTPUT 5	Output	Combination switch (Wiper intermittent dial 4)	All switch OFF	0 V
					Lighting switch 1ST	
					Lighting switch 2ND	
					Lighting switch HI	
					Turn signal switch RH	9.1 V
7	Ground	Door lock/unlock switch (Lock)	Input	Door lock/un- lock switch	Not pressed	 1.2 V
					Pressed to the lock side	0 V
8	Ground	Hazard switch	Input	Hazard switch	Not pressed	 1.3 V
					Pressed	0 V
9	Ground	Door lock/unlock switch (Unlock)	Input	Door lock/un- lock switch	Not pressed	 1.2 V
					Pressed to the unlock side	0 V
12	Ground	Back door opener switch	Input	Back door opener switch	Not pressed	 1.2 V
					Pressed	0 V

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
13	Ground	Shock detect sensor	Input	Ignition switch OFF or ACC		0 V
				Ignition switch ON		
14	Ground	A/C switch	Input	A/C switch	Not pressed	Battery voltage
					Pressed	0 V
15	Ground	Fan switch	Input	Fan switch	Not pressed	Battery voltage
					Pressed	0 V
17	Ground	Light & rain sensor serial link	Input/ Output	Ignition switch OFF or ACC		Battery voltage
				Ignition switch ON		
18	Ground	Security indicator	Output	Security indicator	ON	0 V
					Blinking	
					OFF	Battery voltage
19	—	CAN-H	Input/ Output	—		—
20	—	CAN-L	Input/ Output	—		—
21	Ground	Rear window defogger switch	Input	Rear window defogger switch	Not pressed	
					While pressing	0 V
24*1	Ground	Door lock status indicator	Output	Door lock status indicator	ON	Battery voltage
					OFF	0 V

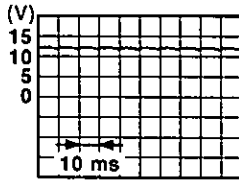
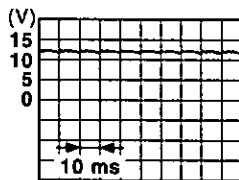
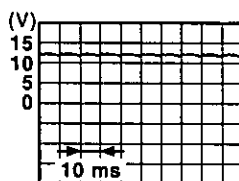
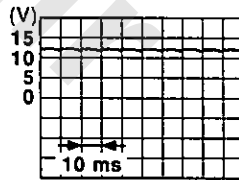
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BCM (BODY CONTROL MODULE)

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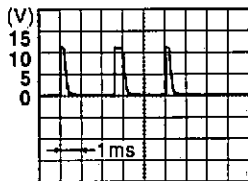
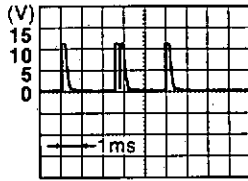
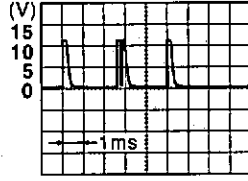
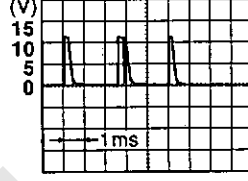
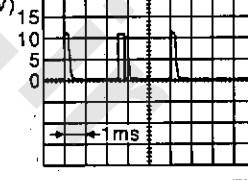
[WITHOUT INTELLIGENT KEY SYSTEM]

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
25	Ground	Rear door switch LH	Input	Rear door switch LH	OFF (When rear door LH closed)	 11.2 V
					ON (When rear door LH opened)	0 V
26	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	 11.2 V
					ON (When driver door opened)	0 V
27	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	 11.2 V
					ON (When passenger door opened)	0 V
28	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	Battery voltage
					ON (When back door opened)	0 V
29	Ground	Rear door switch RH	Input	Rear door switch RH	OFF (When rear door RH closed)	 11.2 V
					ON (When rear door RH opened)	0 V
30*2	Ground	Audio link	Input/ Output	—	—	—

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/Output		
31	Ground	Combination switch INPUT 5	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)  1.3 V JPMIA0165GB
				Front fog lamp switch ON (Wiper intermittent dial 4)	 1.3 V JPMIA0167GB
				Rear fog lamp switch ON (Wiper intermittent dial 4)	 1.3 V JPMIA0168GB
				Rear wiper switch ON (Wiper intermittent dial 4)	 1.3 V JPMIA0169GB
				Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7	 1.3 V JPMIA0196GB

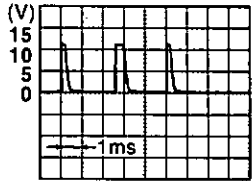
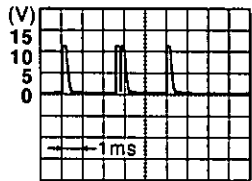
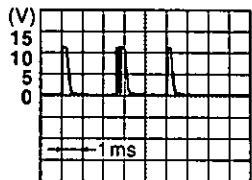
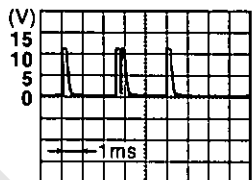
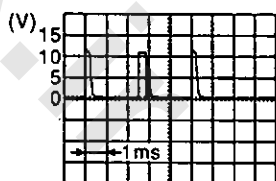
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SEC

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

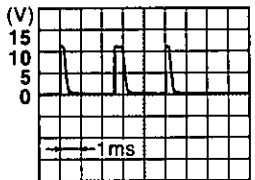
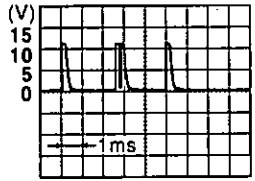
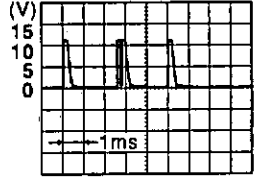
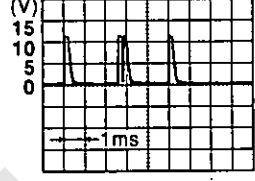
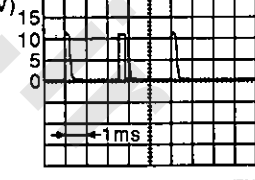
< ECU DIAGNOSIS >

Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
32	Ground	Combination switch INPUT 2	Input	Combination switch (Wiper intermit- tent dial 4)	 1.4 V JPMIA0165GB
				Lighting switch PASS	 1.3 V JPMIA0167GB
				Lighting switch 2ND	 1.3 V JPMIA0166GB
				Front wiper switch INT	 1.3 V JPMIA0168GB
				Front wiper switch HI	 1.3 V JPMIA0169GB

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/Output		
33	Ground	Combination switch INPUT 1	Input	Combination switch (Wiper intermittent dial 4)	All switch OFF  1.4 V JPMIA0165GB
					Turn signal switch LH  1.3 V JPMIA0167GB
					Turn signal switch RH  1.3 V JPMIA0166GB
					Front wiper switch LO  1.3 V JPMIA0168GB
					Front washer switch ON  1.3 V JPMIA0196GB

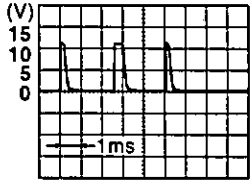
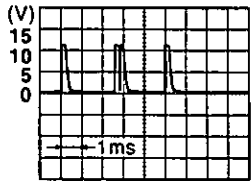
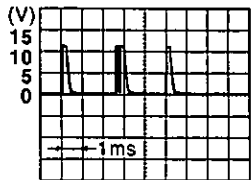
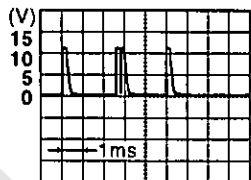
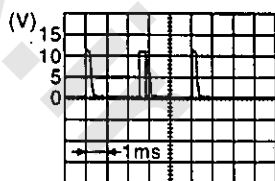
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BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

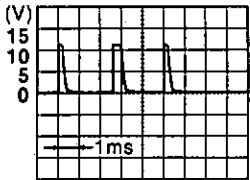
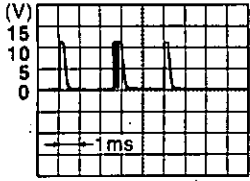
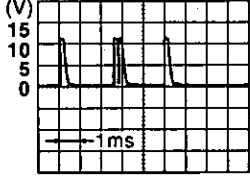
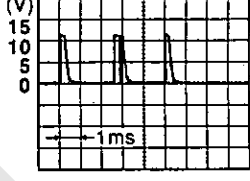
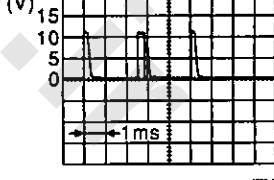
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Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
34	Ground	Combination switch INPUT 4	Input	Combination switch	 1.4 V JPMIA0165GB
				Lighting switch AUTO (Wiper intermittent dial 4)	 1.3 V JPMIA0167GB
				Lighting switch 1ST (Wiper intermittent dial 4)	 1.3 V JPMIA0166GB
				Rear wiper INT (Wiper intermittent dial 4)	 1.3 V JPMIA0167GB
				Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 6	 1.3 V JPMIA0166GB

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
35	Ground	Combination switch INPUT 3	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)  1.4 V
				Lighting switch HI (Wiper intermittent dial 4)	 1.3 V
				Lighting switch 2ND (Wiper intermittent dial 4)	 1.3 V
				Rear wiper switch ON	 1.3 V
				Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	 1.3 V
36	Ground	Key switch	Input	Insert mechanical key into ignition key cylinder	Battery voltage
				Remove mechanical key from ignition key cylinder	0 V
37	Ground	ACC power supply	Input	Ignition switch OFF	0 V
				Ignition switch ACC or ON	Battery voltage
38	Ground	Ignition power supply	Input	Ignition switch OFF or ACC	0 V
				Ignition switch ON	Battery voltage

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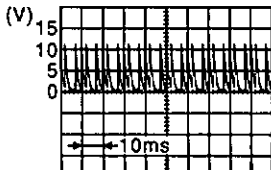
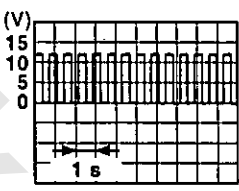
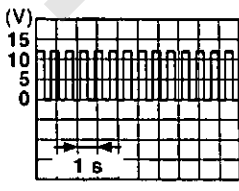
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BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition	Value (Approx.)
+	-	Signal name	Input/Output		
39	Ground	NATS antenna amp.	Input/Output	Insert mechanical key into ignition key cylinder	Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
40	Ground	NATS antenna amp.	Input/Output	Insert mechanical key into ignition key cylinder	Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
41	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage
42	Ground	Interior room lamp power supply	Output	After passing the interior room lamp battery saver operation time	0 V
				Any other time after passing the interior room lamp battery saver operation time	Battery voltage
43	Ground	Rear wiper motor	Output	Rear wiper switch OFF	0 V
				Rear wiper switch ON	Battery voltage
44	Ground	Rear wiper auto stop	Input	Rear wiper stop position	0 V
				Any position other than rear wiper stop position	 JPMA0187GB
45	Ground	Back door opener actuator	Output	Back door opener switch	Pressed
				Not pressed	Battery voltage (300ms) 0 V
47	Ground	Turn signal LH	Output	Turn signal switch OFF	0 V
				Turn signal switch LH	 PKID0926E 6.5 V
48	Ground	Turn signal RH	Output	Turn signal switch OFF	0 V
				Turn signal switch RH	 PKID0926E 6.5 V
49	Ground	Rear fog lamp	Output	Lighting switch 1ST and front fog lamp switch ON	Rear fog lamp switch OFF
					Rear fog lamp switch ON 0 V Battery voltage
50*1	Ground	Door lock status switch	Input	Driver side door	Unlock
					Lock 5 V 0V

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Terminal No.		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
51	Ground	Stop lamp switch	Input	Depress the brake pedal		Battery voltage
				Release the brake pedal		0 V
52	Ground	Room lamp timer control	Output	Interior room lamp	OFF	Battery voltage
					ON	0 V
53	Ground	Power window power supply	Output	Ignition switch	OFF or ACC	0 V
					ON	Battery voltage
54	Ground	Door unlock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0 V
55	Ground	Ground	—	Ignition switch ON		0 V
56	Ground	Door lock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	0 V
					Pressed to the lock side	Battery voltage
57	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage
58	Ground	Power window power supply	Output	Ignition switch OFF		Battery voltage
59	Ground	Super lock	Output	When lock button of key fob or Intelligent Key is not pressed		0 V
				When lock button of key fob or Intelligent Key is pressed		Battery voltage
60	Ground	Driver door unlock	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0 V

*1: Except for the middle east.

*2: With 6-speakers

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

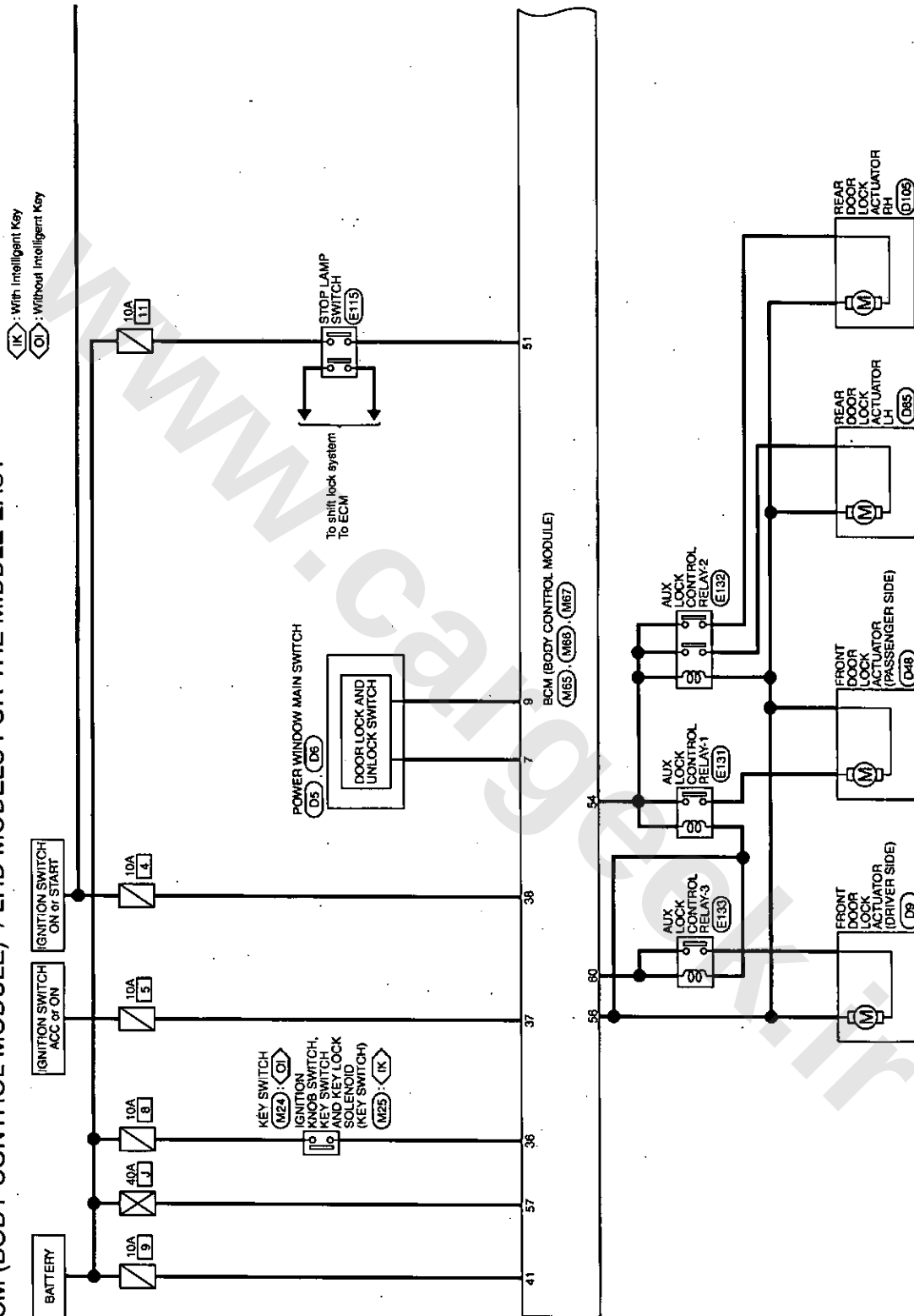
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Wiring Diagram - BCM -

INFOID:0000000004939878

LHD MODELS FOR THE MIDDLE EAST

BCM (BODY CONTROL MODULE) / LHD MODELS FOR THE MIDDLE EAST

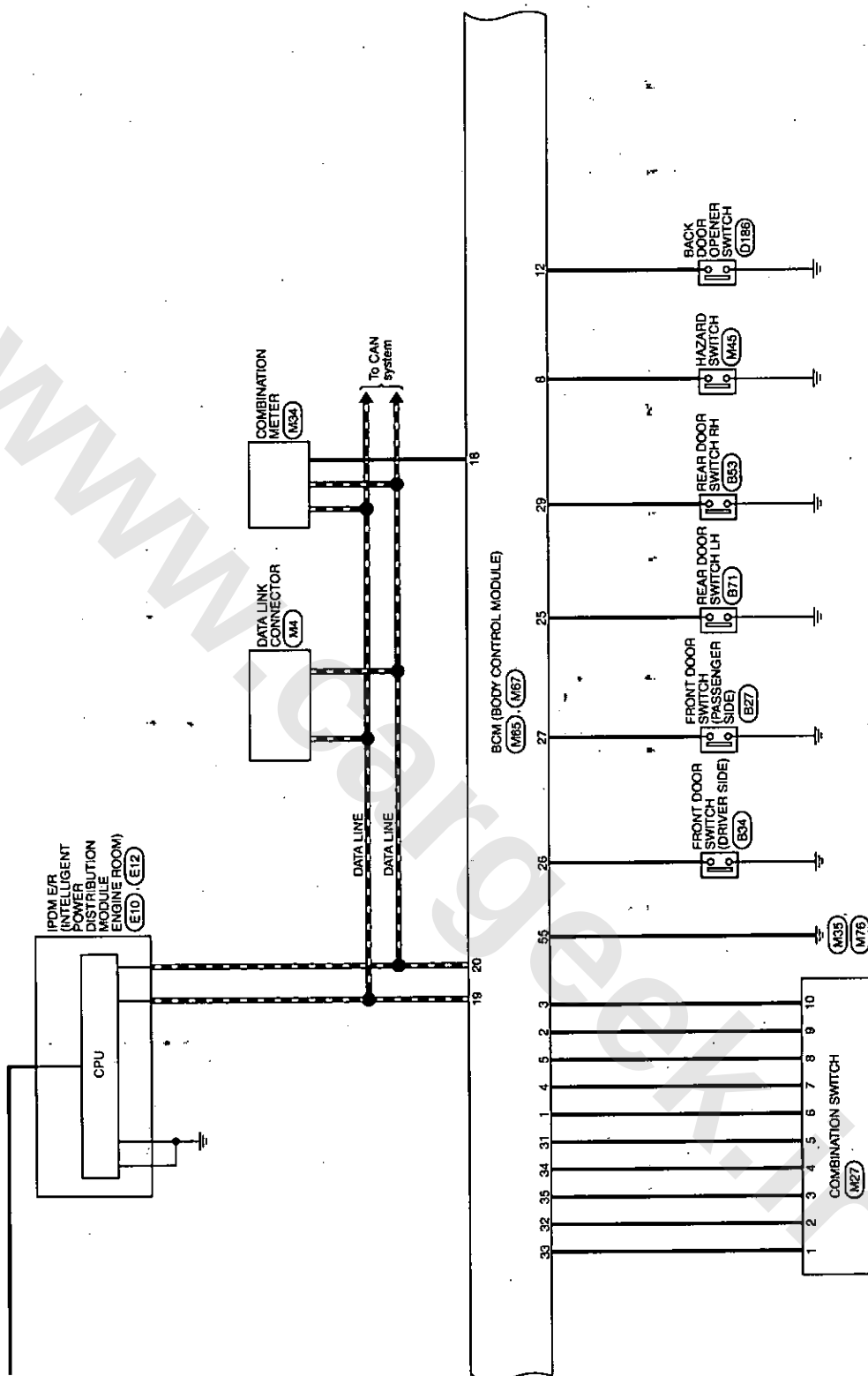


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BCM (BODY CONTROL MODULE)

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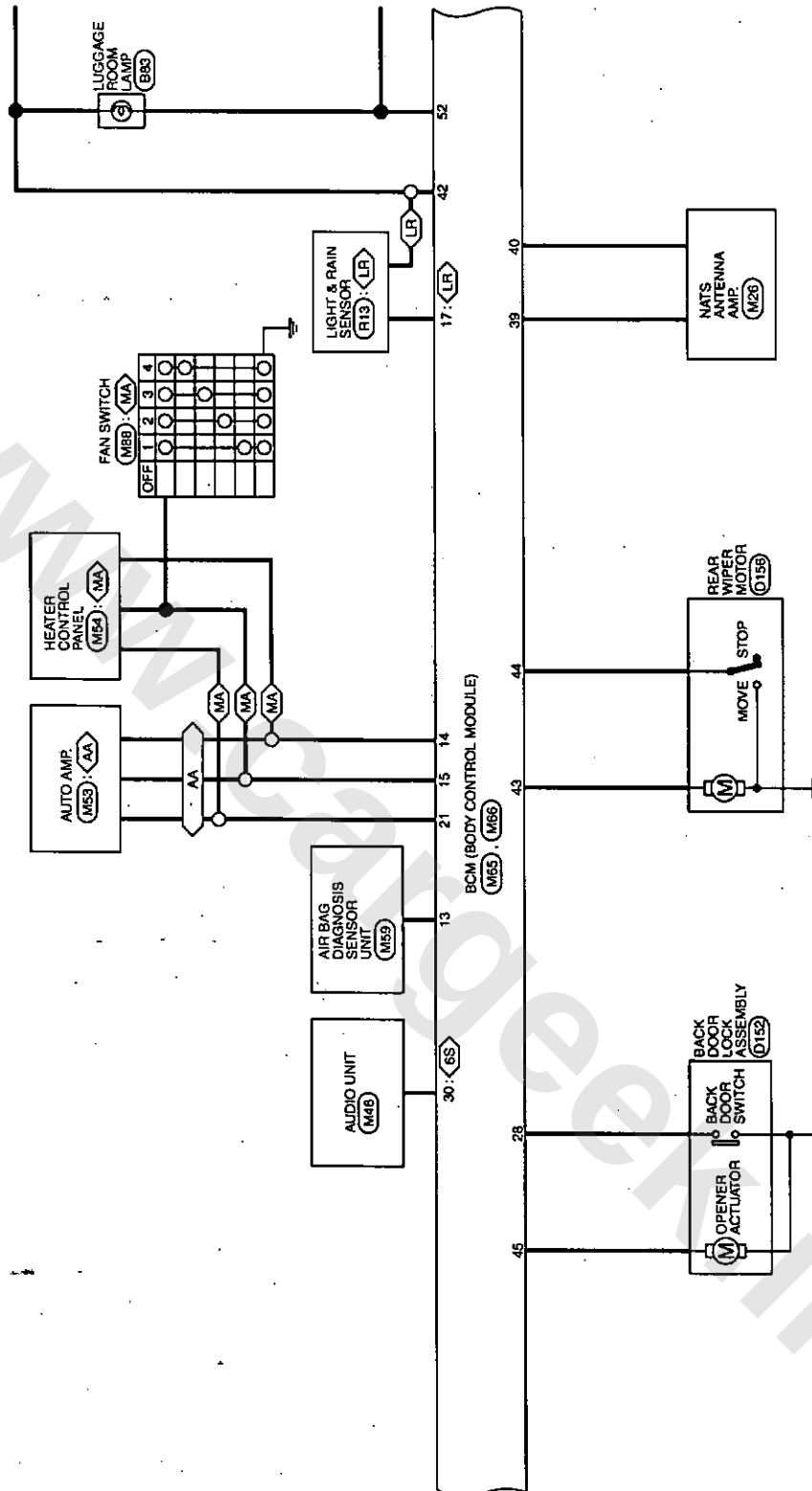
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BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

- 6S : With 6-speakers
- AA : With auto A/C
- MA : With manual A/C
- LR : With light & rain sensor



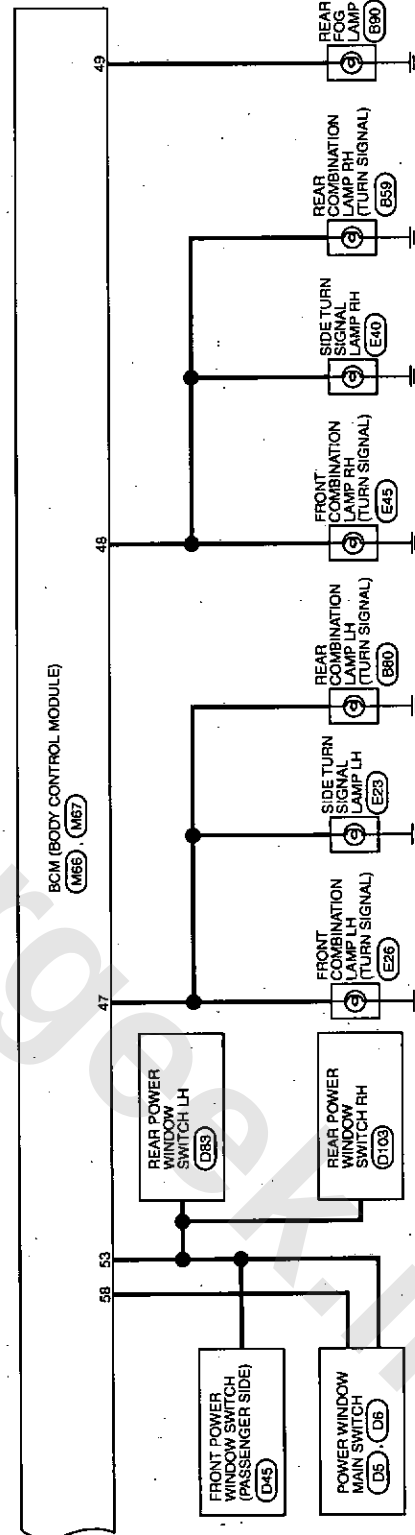
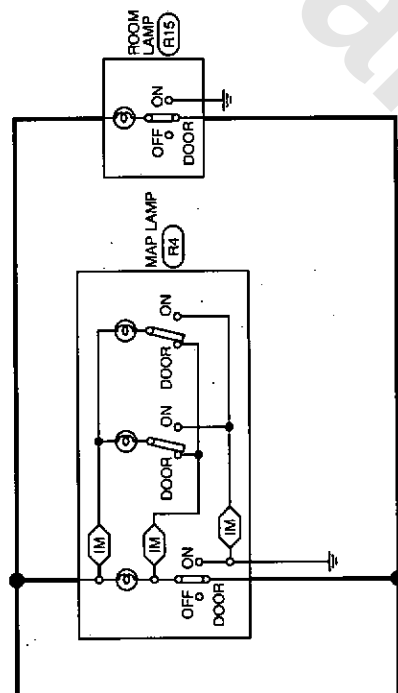
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BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

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IM: With integrated map lamp

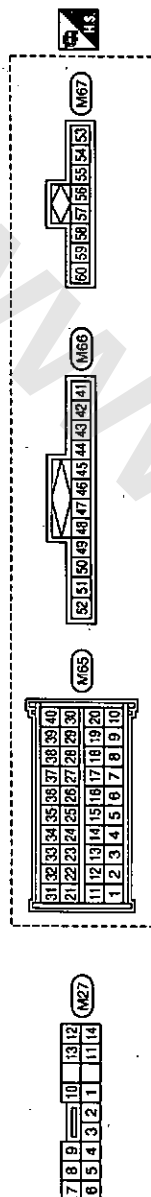


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BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

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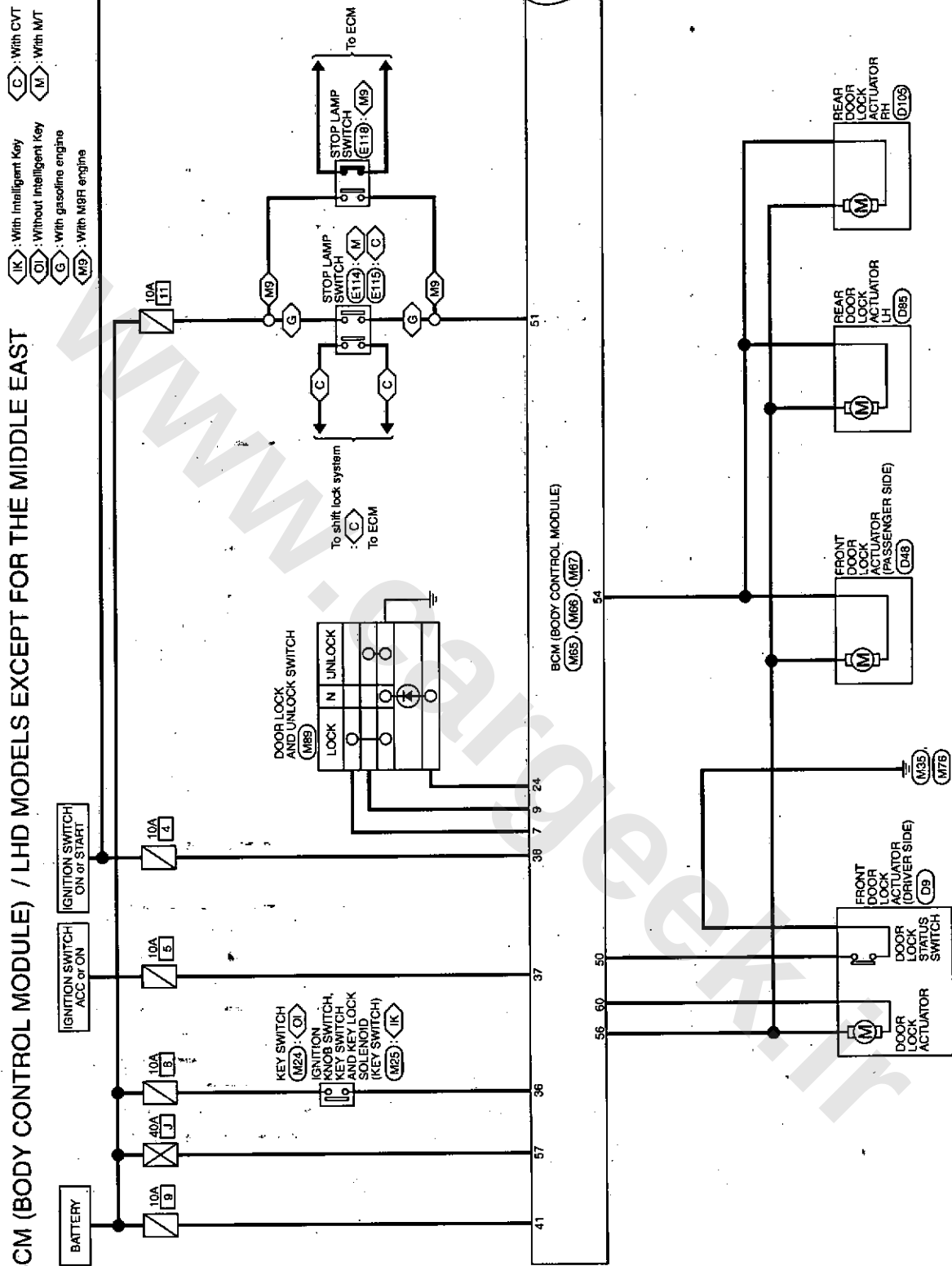
BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

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LHD MODELS EXCEPT FOR THE MIDDLE EAST

BCM (BODY CONTROL MODULE) / LHD MODELS EXCEPT FOR THE MIDDLE EAST



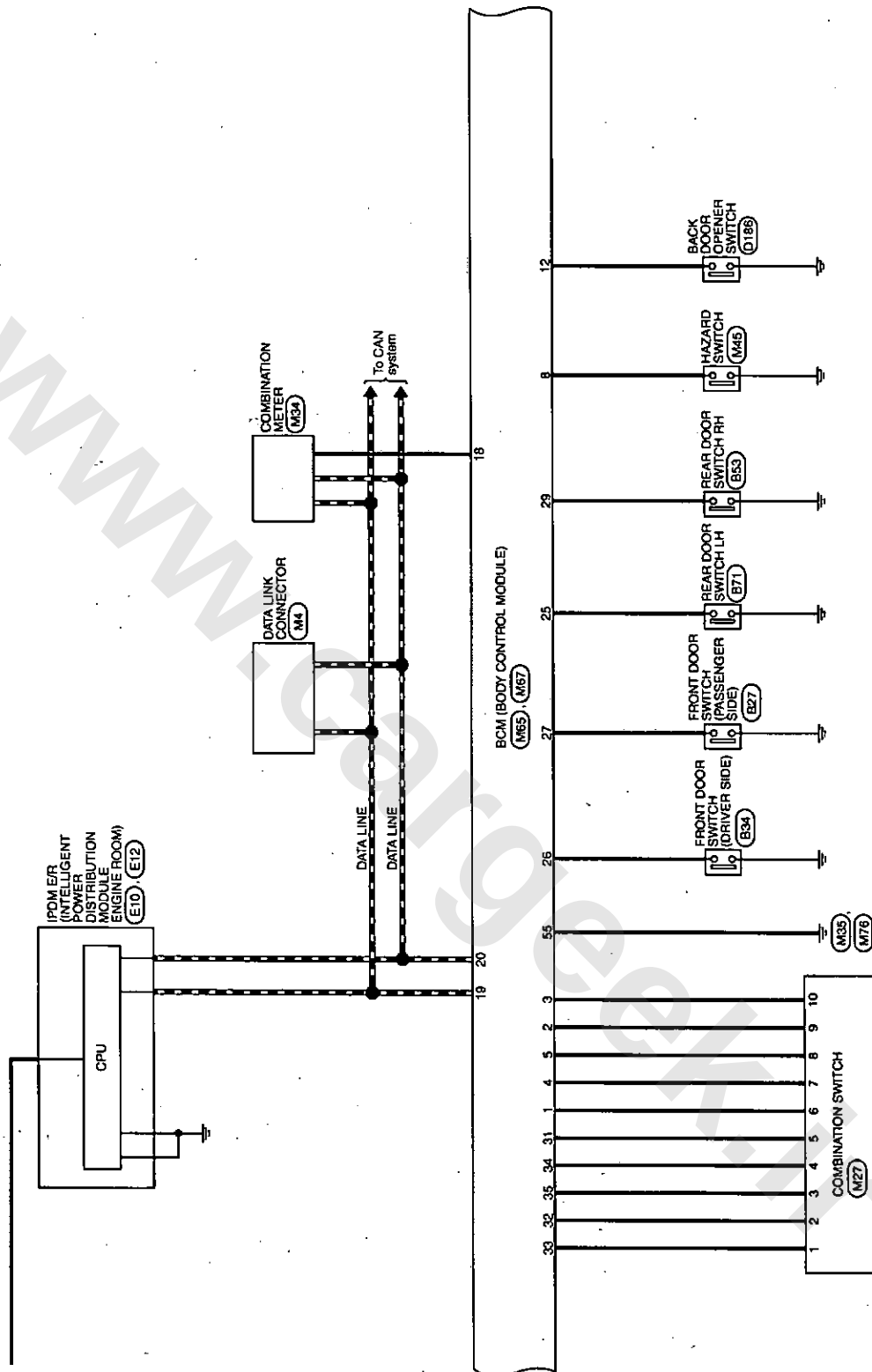
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BCM (BODY CONTROL MODULE)

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[WITHOUT INTELLIGENT KEY SYSTEM]



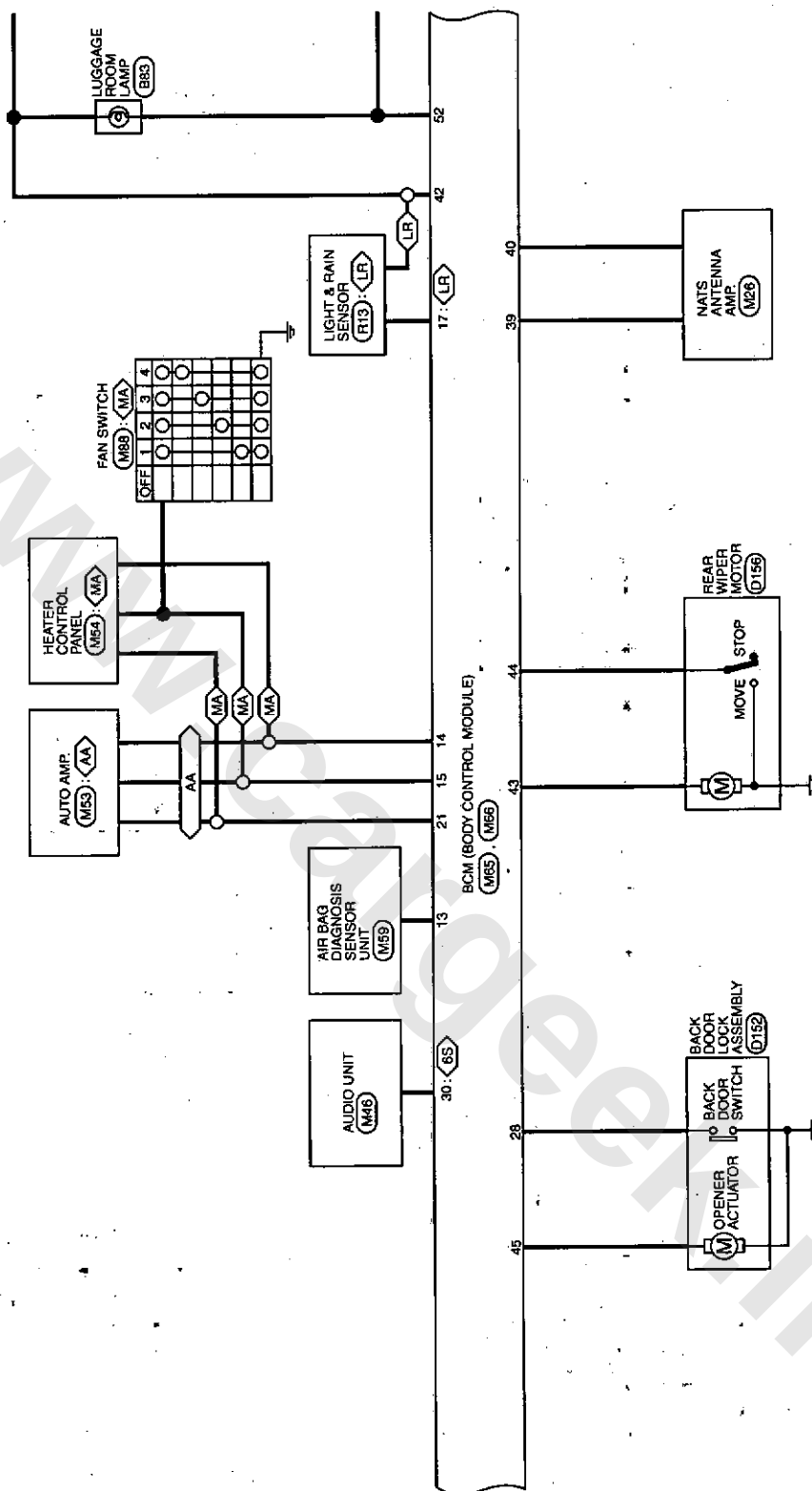
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BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

6S : With 6-speakers
 AA : With auto A/C
 MA : With manual A/C
 LR : With light & rain sensor



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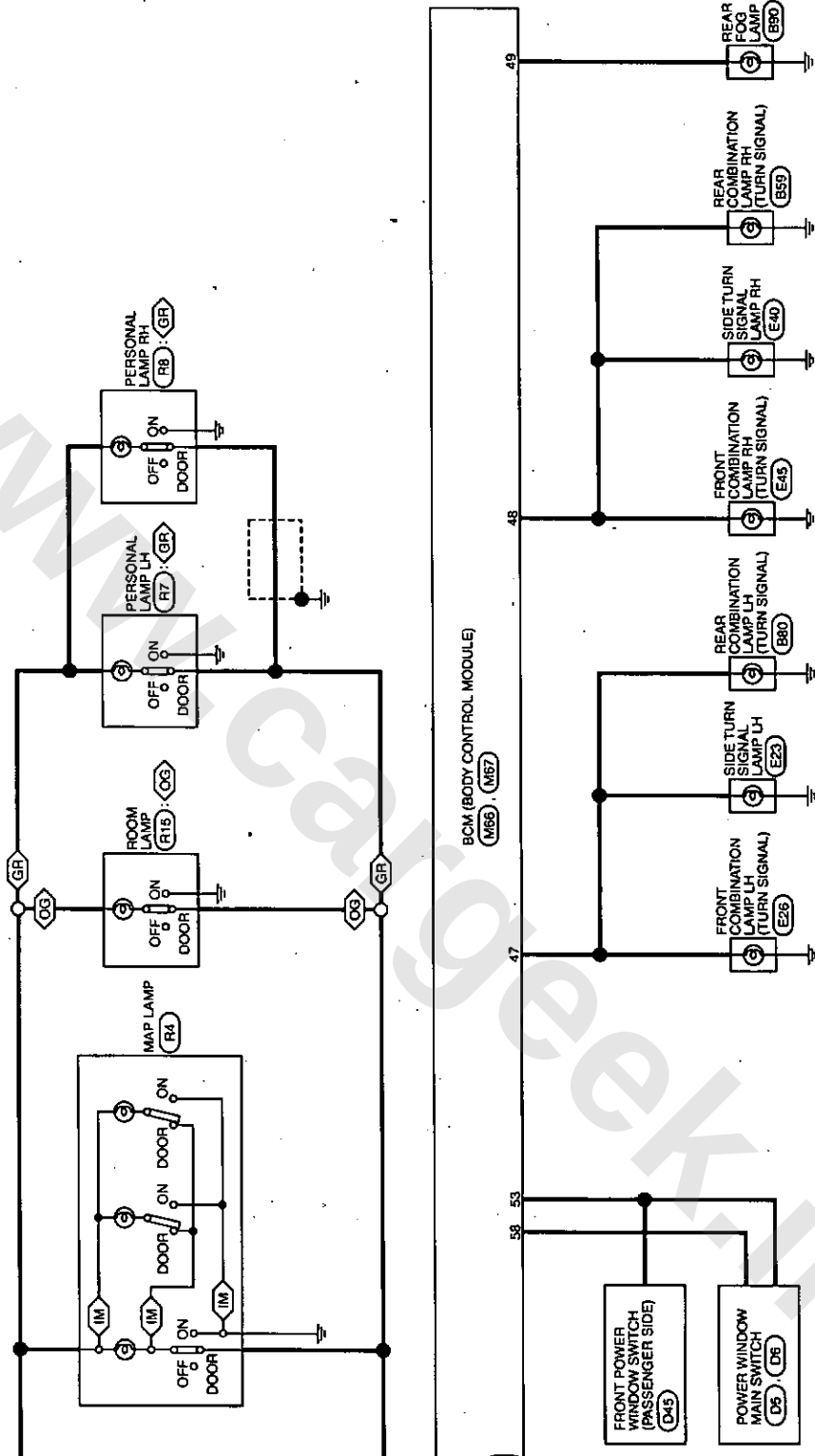
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

IM : With integrated map lamp
GR : With glass top roof
OG : Without glass top roof

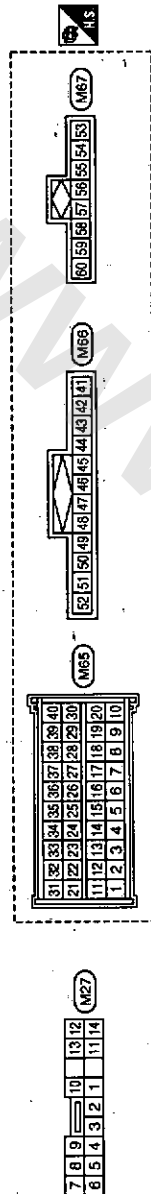


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BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

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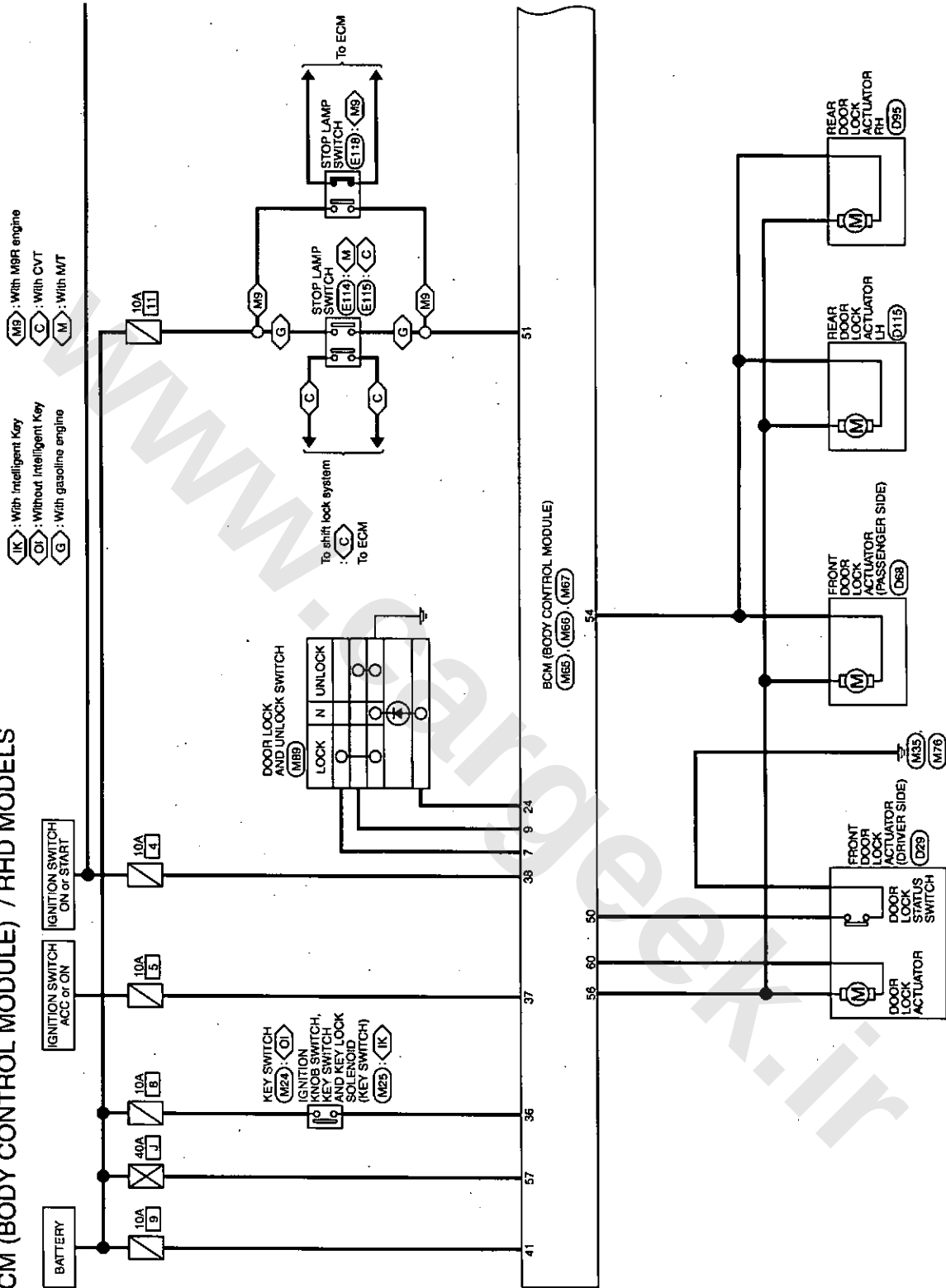
BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

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RHD MODELS

BCM (BODY CONTROL MODULE) / RHD MODELS

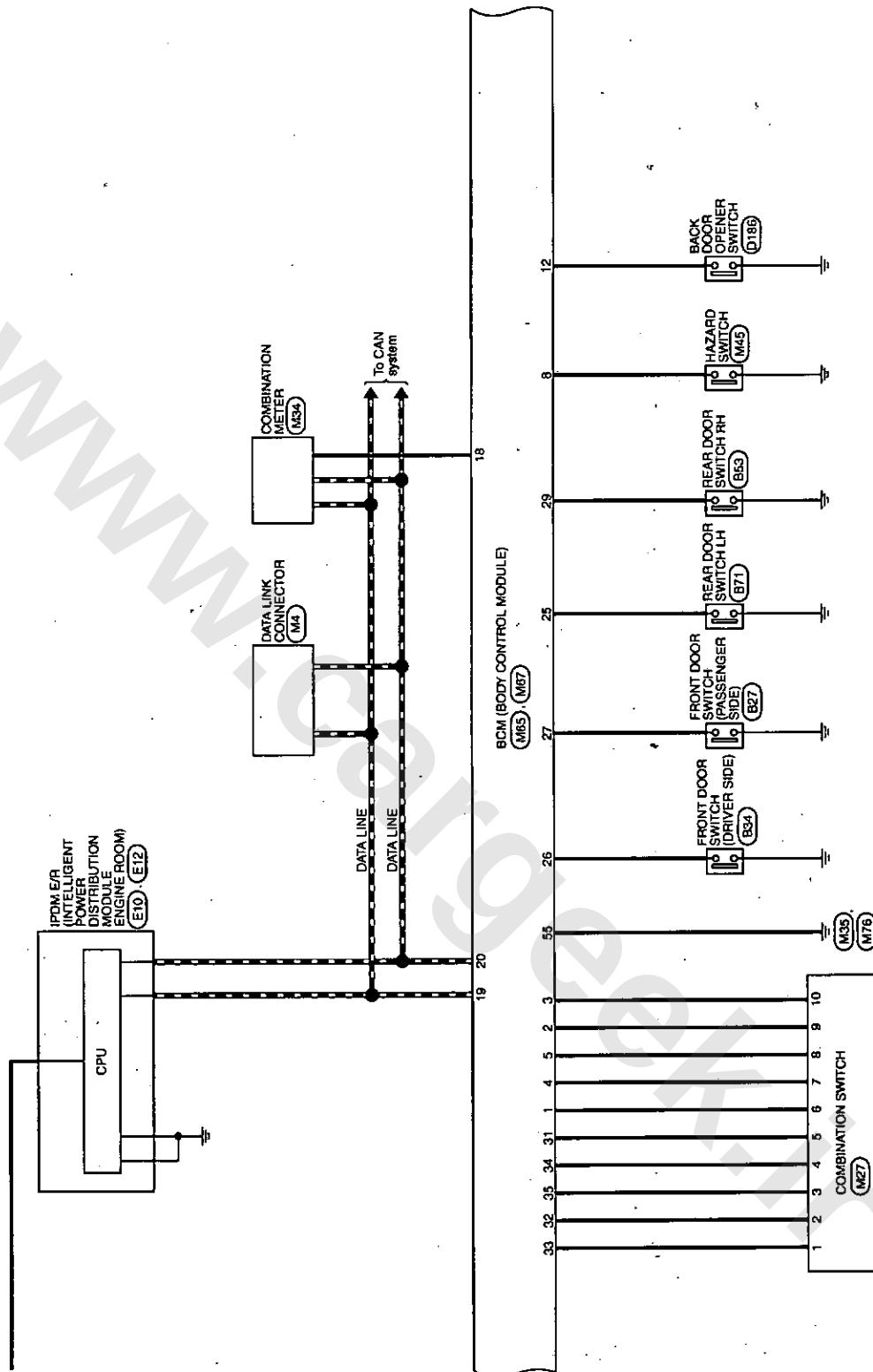


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BCM (BODY CONTROL MODULE)

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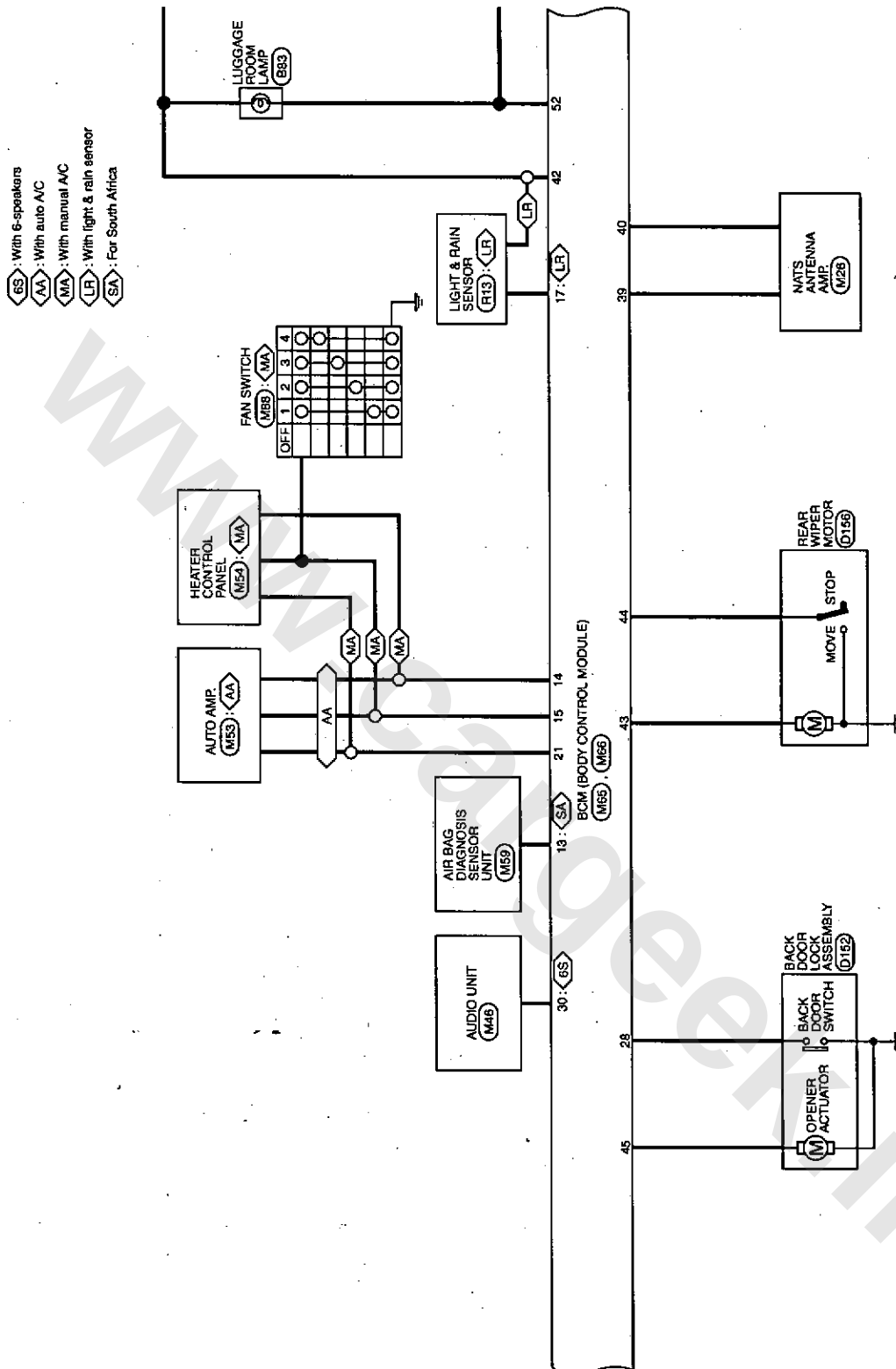
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BCM (BODY CONTROL MODULE)

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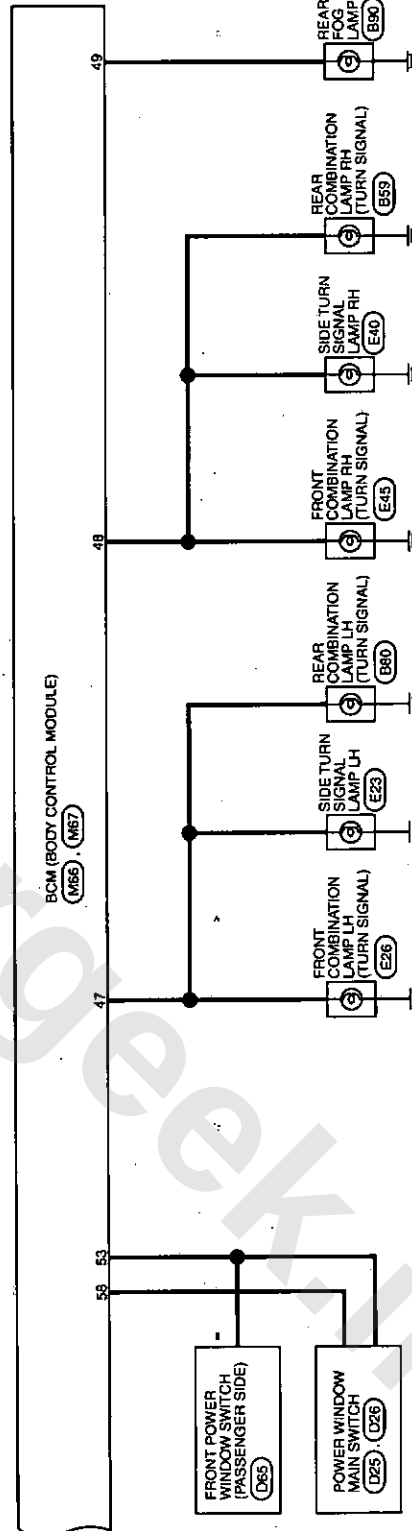
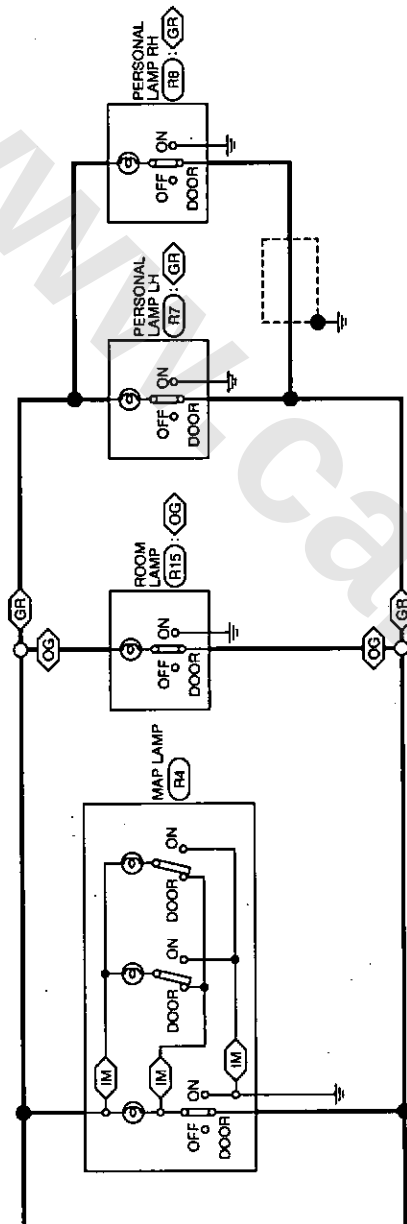
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BCM (BODY CONTROL MODULE)

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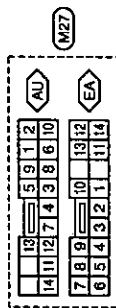
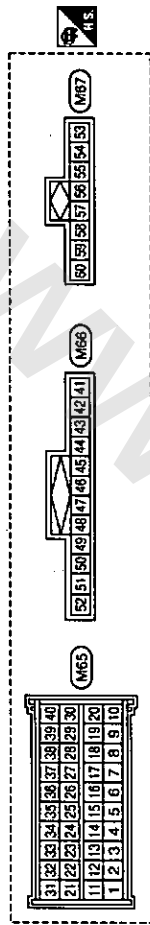
< ECU DIAGNOSIS >

IM : With integrated map lamp
GR : With glass top roof
OG : Without glass top roof



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AU : For Australia
EA : Except for AU

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Fail-safe

REAR WIPER CONTROL

BCM detects a rear wiper stopping position according to a rear wiper auto stop signal.

When a rear wiper auto stop signal is in the condition listed below, BCM stops power supply to rear wiper after rear wiper is activated for five seconds.

BCM (BODY CONTROL MODULE)

[WITHOUT INTELLIGENT KEY SYSTEM]

< ECU DIAGNOSIS >

Ignition switch	Rear wiper switch	Rear wiper auto stop signal
ON	OFF	The rear wiper auto stop signal (stop position) cannot be input for 5 seconds.
	ON	The rear wiper auto stop signal does not change for 5 seconds.

NOTE:

The above operation is repeated when operating the rear wiper switch one minute after the stop of the rear wiper caused by Fail-safe.

TURN SIGNAL LAMP CONTROL

BCM detects the turn signal lamp circuit status from the terminal voltage.

BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

NOTE:

The blinking speed is normal while activating the hazard warning lamp.

LIGHT & RAIN SENSOR MALFUNCTION DETECTION FUNCTION

BCM controls the following items when LIGHT & RAIN sensor has a malfunction.

Auto Light Control

Headlamp is turned ON.

Front Wiper Control

The condition just before the activation of Fail-safe is maintained until the front wiper switch is turned OFF.

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NATS (NISSAN ANTI-THEFT SYSTEM) SYMPTOMS

< SYMPTOM DIAGNOSIS >

[WITHOUT INTELLIGENT KEY SYSTEM]

SYMPTOM DIAGNOSIS

NATS (NISSAN ANTI-THEFT SYSTEM) SYMPTOMS

Symptom Table

INFOID:0000000004898862

NOTE:

- Check that vehicle is under the condition shown in "Conditions of vehicle" before starting diagnosis, and check each symptom.
- If the following symptoms are detected, check systems shown in the "Diagnosis/service procedure" column in this order.

CONDITIONS OF VEHICLE (OPERATING CONDITIONS)

- Ignition key is not inserted into key cylinder.

Symptom	Diagnosis/service procedure	Reference page
Security indicator lamp does not turn ON or flash	1. Check security indicator lamp	SEC-75
	2. Check Intermittent Incident	GI-38

PRECAUTIONS

< PRECAUTION >

[WITHOUT INTELLIGENT KEY SYSTEM]

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000005022845

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIR BAG".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

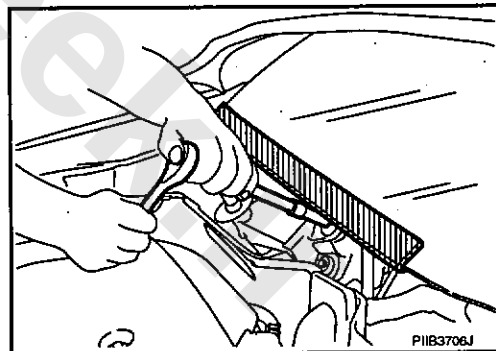
WARNING:

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution for Procedure without Cowl Top Cover

INFOID:0000000004983578

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



NATS ANTENNA AMP.

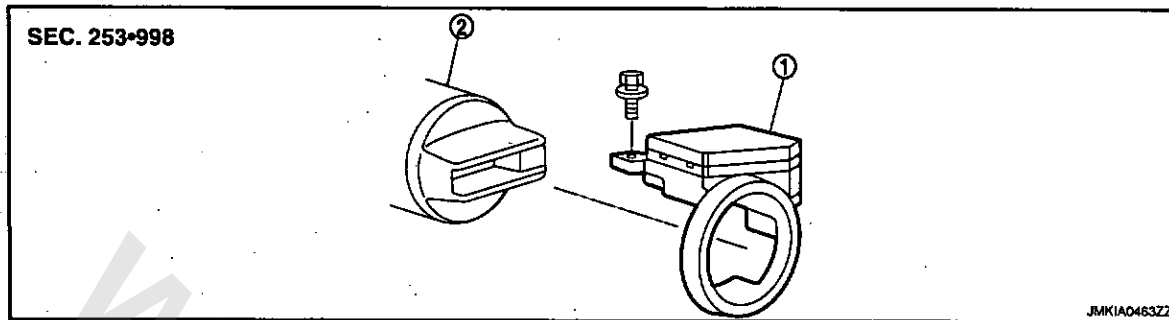
< ON-VEHICLE REPAIR >

[WITHOUT INTELLIGENT KEY SYSTEM]

ON-VEHICLE REPAIR

NATS ANTENNA AMP.

Exploded View



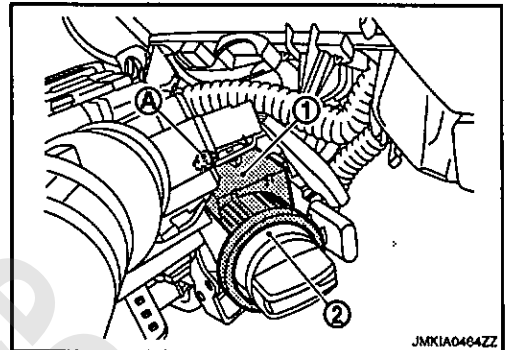
1. NATS antenna amp.
2. Steering lock assembly

Refer to SEC-108, "Removal and Installation".

Removal and Installation

REMOVAL

1. Remove the steering column cover.
Refer to ST-10, "Exploded View" and IP-12, "Removal and Installation".
2. Remove the NATS antenna amp. mounting bolt (A), and then remove NATS antenna amp. (1) from steering lock assembly (2).



INSTALLATION

Install in the reverse order of removal.